NPAM Coordinator Database User Guide

v2

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Written to accompany the NPAM Coordinator Database v8

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Introduction

The NPAM Coordinator Database User Guide is intended for use by the NPAM Project Coordinator. It is a step-by-step guide describing how to use the NPAM Coordinator Database to complete the annual steps that import and process the NPAM vegetation and management data. These steps are to be completed after the data have been entered into the centralized SharePoint NPAM Database by NPAM cooperators for the current management year. The result of the processing steps is updated model weights, management recommendations per unit for the upcoming management year, and a summary report of the state of each management unit from NPAM inception (2009) to the most recent management year. Additionally, there are various summary report options available for the coordinator to summarize NPAM vegetation and management data by year and over various spatial scales.

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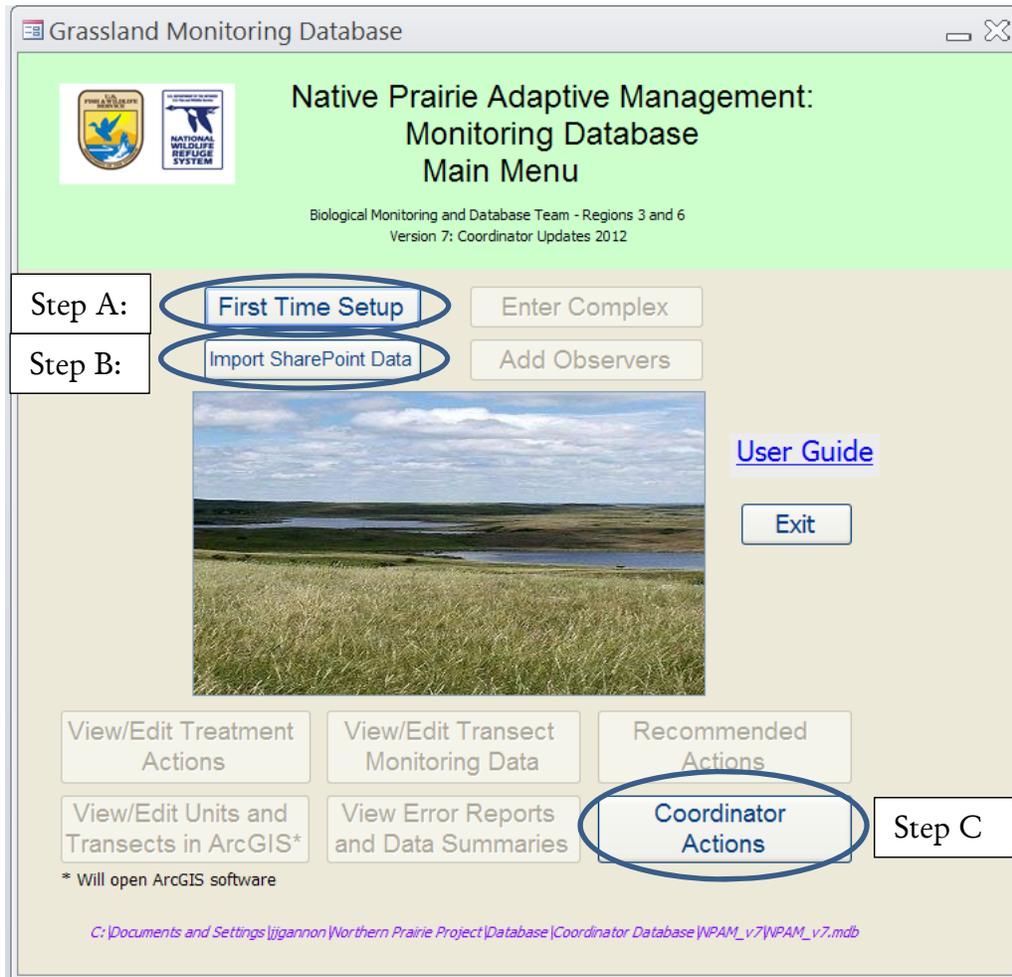
Figure 1: Database Main Menu

The coordinator database is used to review flagged records, reclassify unclassifiable actions, and produce summary reports. A detailed description of each step is provided below.

Main Menu

Step A:

When the coordinator opens the database, the Main Menu appears (Figure 1). First, the coordinator must click "First Time Setup". This will connect the database to three other databases: "Grassland_Monitoring", "grassmon_lookup" and "Grassland_Ancillary". Each database must be in the DB folder, which must be located in the same place as the NPAMV6_6 database. The database "Grassland_Monitoring" was used to hold all the monitoring data in previous versions of the database. Currently, it holds several tables

necessary for the coordinator tasks. The database "grassmon_lookup" was used to store the lookup tables, some of which are necessary for the coordinator tasks. The database "Grassland_Ancilllary" is used to update the management unit information, management restrictions, and window dates.

When the coordinator clicks the "First Time Setup" button, three alerts appear:

If any of the databases are not in the correct location, the coordinator will receive the following alert:
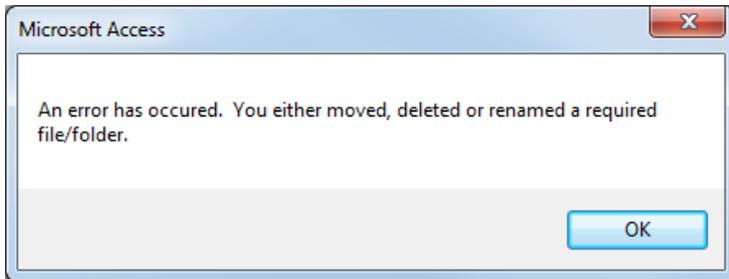
Step B:

Once the "First Time Setup" has been completed successfully, the coordinator then imports data from SharePoint using the "Import SharePoint Data" button. It is necessary for the coordinator to be connected to the SharePoint site in order to import the data. This is accomplished by opening Internet Explorer and logging on to the NPAM site. If the coordinator is not connected, he/she will get an alert:
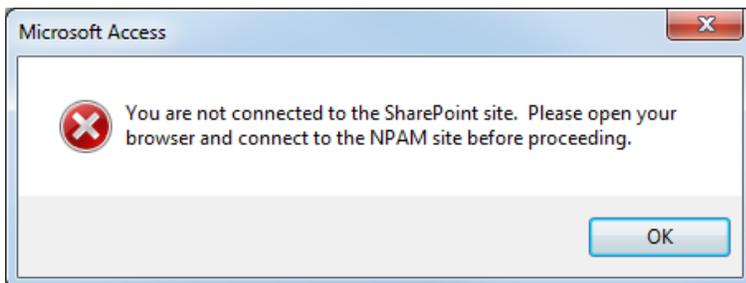
The coordinator will also be alerted if the import was successful:

This step downloads and updates the tables Mgmt_Units, Transects, tbl_Actions, tbl_PlantGroups_Monitoring and tbl_Special_Treatment. Every time the data is downloaded, a copy of it is added to the archive table: tbl_Actions_Archive, tbl_PlantGroups_Monitoring_Archive, tbl_Special_Treatment_Archive. Note that any time that the SharePoint data is imported, all processing steps must be rerun to incorporate any changes to the SharePoint data that occurred since it was last imported.

Step C:

Once the data have been imported from SharePoint, the coordinator clicks the "Coordinator Actions" button. This brings up the Coordinator Actions screen:

Coordinator Actions Screen

Processing Actions Tab
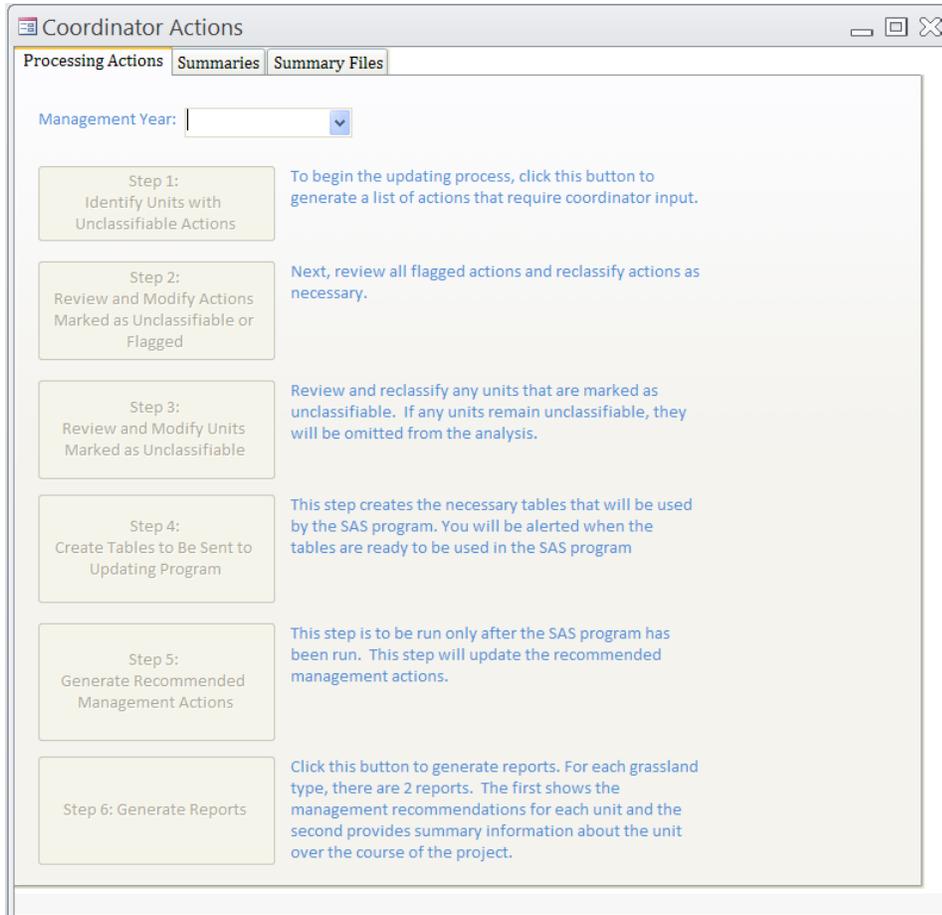
Figure 2: Coordinator Actions Screen

The screen contains three tabs: Processing Actions, Summaries, and Previous Years' Reports. The Processing Actions tab has 6 buttons that appear grayed out. The buttons become enabled as steps are completed. To begin, the coordinator selects a Management Year. Only management year 2011 and years for which SharePoint data have been imported will appear in the dropdown.
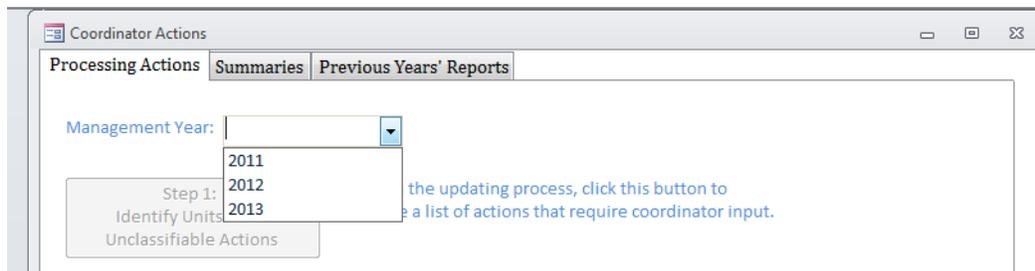
Once the coordinator selects a year, the Step 1 button becomes enabled:
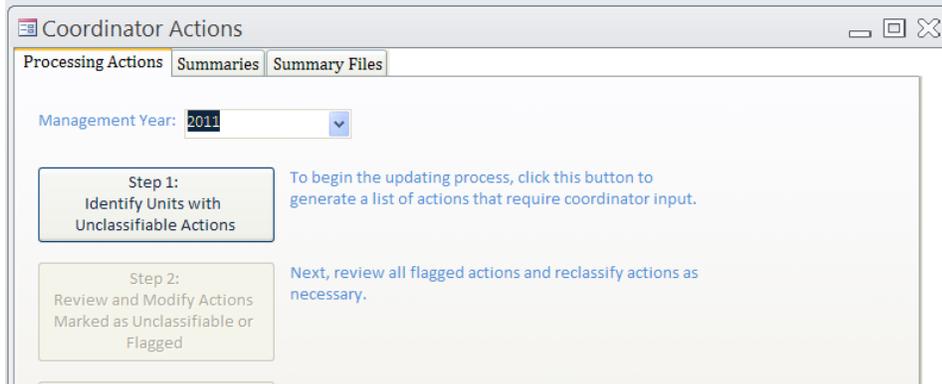
Step 1:

The coordinator clicks the Step 1 button to identify units with unclassifiable actions. The coordinator is alerted that the process is running:
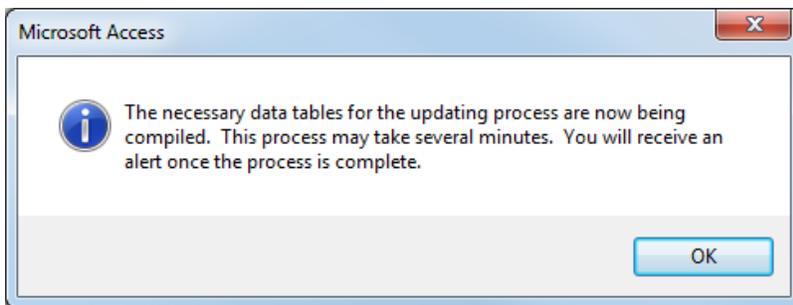
If the processing has already been performed, the coordinator is alerted:
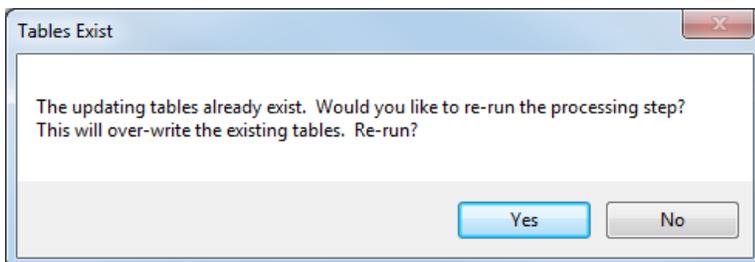
If the coordinator selects "No", the processing steps will not be re-run and the Step 2 button will become enabled:
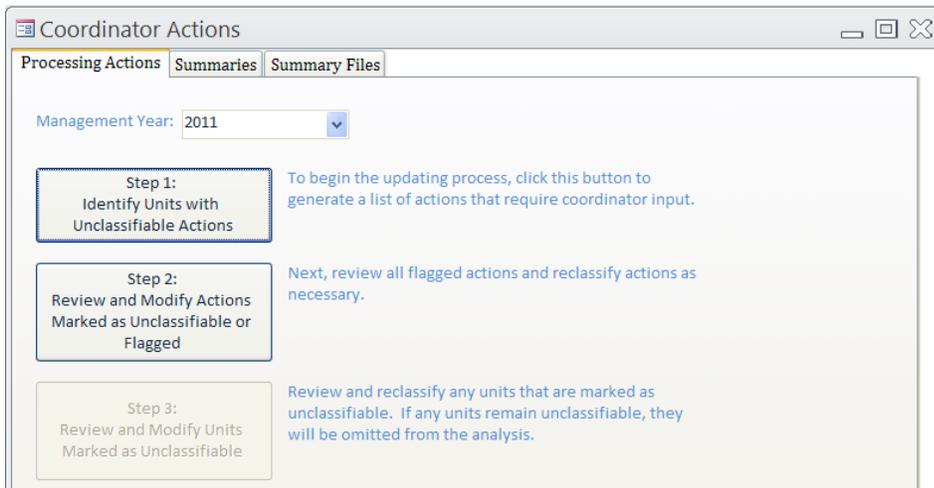
If the coordinator selects "Yes", the processing will be re-run and the coordinator will be alerted:
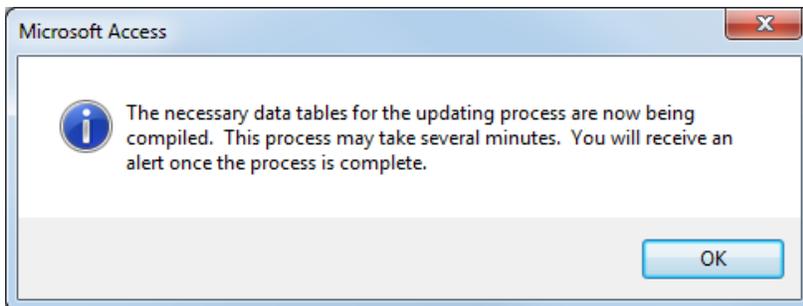
When the processing is complete, a message will appear:
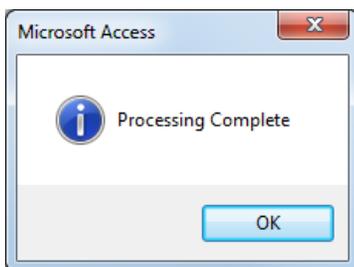
At this point, Step 2 will become enabled.

Step 2:

The coordinator clicks on Step 2 to review and modify actions marked as flagged or unclassifiable.
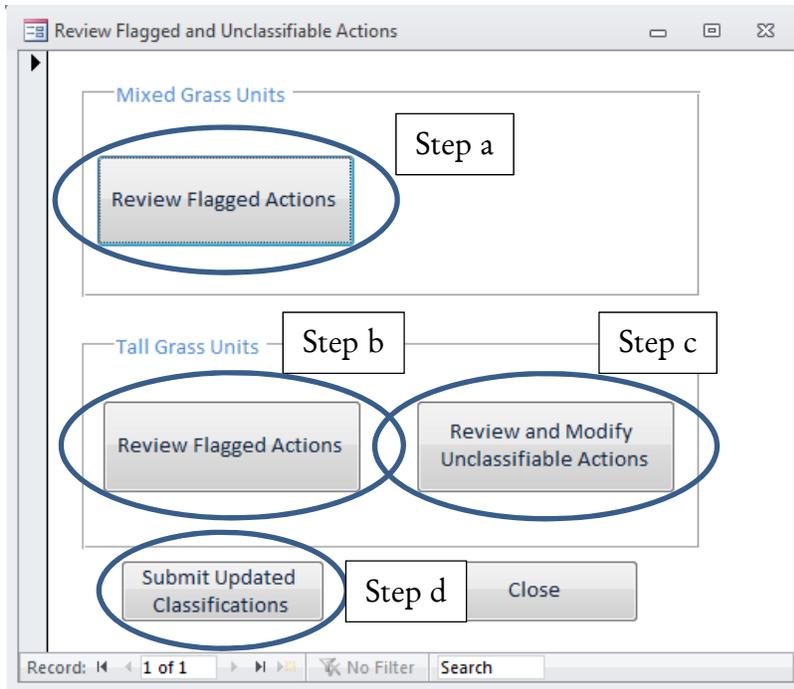
Figure 3: Review Flagged and Unclassifiable Actions Screen

The top portion of the screen has buttons for Mixed Grass Units. Based on the classification rules, mixed grass units cannot have unclassifiable actions, so a button only appears for reviewing flagged actions. The bottom half of the screen shows the buttons for Tall Grass Units. There is a button for reviewing flagged actions and a separate button for reviewing unclassifiable actions. The coordinator can choose any of these buttons to begin.

Step a:

When the coordinator clicks "Review Flagged Actions" under the Mixed Grass Units section, the following window appears:

Figure 4: Mixed Grass Flagged Actions Screen

The window shows the information for each flagged mixed grass action. The records are ordered alphabetically by Complex, Org, Unit and Management Number. The basic unit information is listed at the top of the form. In the middle portion of the form, the management action information and burn or graze data are listed. "Management number _ of _" indicates whether the action is one of many actions performed on the unit. The bottom portion of the form shows the treatment classification for the action and for the unit. Fields highlighted in yellow indicate the reason the action was flagged. A management record is flagged for the coordinator to scrutinize if any of the following are true:

- Fire Type = Wildland
- Burn Cover < 50 (i.e., 0-10, 10-20, 20-30, 30-40, 40-50)
- Utilize < Moderate 21-40% (i.e., Unused 0% or Slight 1-20%)
- Graze Length < 7 days
- Proportion of Unit Treated (i.e., treatment acres/unit acres) < 0.95
- The comment field is not null
- A special treatment was entered for the unit

In the screen shot above, the record was flagged because less than 95% of the unit was treated, the graze utilization was less than Moderate, and a comment had been entered.

If a record was flagged because a special treatment had been entered for the unit, an additional button outlined in yellow will appear:

Figure 5: Mixed Grass Flagged Actions Screen with View Special Treatment button

When the coordinator clicks the 'View Special Treatments' button, a list of the special treatments entered for that unit will appear:

When the coordinator is finished reviewing the special treatment, he/she closes the popup screen by clicking on the "x" in the upper right hand corner.

To aid the coordinator, pop-up help menus appear when the coordinator places the cursor inside the treatment classification text boxes:

The coordinator tasks are highlighted by the red box in the bottom right hand corner. The coordinator must mark the record as reviewed by clicking the checkbox in the bottom right hand corner of the screen. Below the check box is a dropdown box with options for reclassifying the action:

The coordinator can choose to either leave the action unchanged ("No Reclassification"), reclassify it as a "Rest", or reclassify it as a "Non-NPAM Action". The coordinator may choose to reclassify a record as a "Non-NPAM Action" if, based on the information provided, she/he concludes that it does not conform to the NPAM management action guidelines. If the coordinator reclassifies the individual action as a non-NPAM action, the overall action for the unit will become "Unclassifiable". The Coordinator will have an opportunity to review the classified action for the unit in Step 3 and determine if it will remain "Unclassifiable" or be reclassified as one of the recognized NPAM actions. The details of reclassifying unit-level actions are discussed below in Step 3.

The coordinator must indicate that each flagged record has been reviewed and must select a reclassification action from the dropdown list before proceeding. In addition, the coordinator has the option of entering any comments in the Coordinator Comments box at the bottom of the screen; this field is not required.

The coordinator can navigate to the next record by using the navigation buttons at the bottom of the form:

When the coordinator is done reclassifying the records, the "x" in the upper right hand corner of the form can be used to close the form.

Step b:

When the coordinator clicks on the "Review Flagged Actions" button under the Tall Grass Units section, the following form appears:

Figure 6: Tall Grass Flagged Actions Screen

The records are ordered alphabetically by Complex, Org, Unit, and Management Number. The top portion of the form shows the unit information. The next section contains the basic management action information, as well as the start and end dates of the fall and spring windows and the length of the window for the season in which the management action was implemented (fall is 1 Sep – 31 Dec; spring is 1 Jan – 31 Aug). The next section includes the details of burn actions and graze actions. Burn data include fields that classify the timing of the burn relative to the seasonal window according to observed unit-specific phenology ("Phenology") and window dates ("Window"). Graze actions include the timing of the start and end of the graze relative to the respective seasonal window as classified by observed unit-specific phenology and by window dates. Additionally, several calculated fields are provided that are used along with the window dates to classify the graze as occurring within or outside of the window.

If a special treatment has been entered for the unit, the "View Special Treatment" button, outlined in yellow, will appear. If no special treatment has been entered for the unit, the button will not appear.

Figure 7: Tall Grass Flagged Actions Screen with View Special Treatment Button

When the coordinator clicks the button, the special treatment window pops up:

When the coordinator is finished reviewing the special treatment he/she closes the popup screen by clicking on the "x" in the upper right hand corner.

Pop-up descriptions are available for the following fields: Window Length, Phenology, Window, Phenology Start, Phenology End, Window Start, Window End, Graze Window Length, END, BEFORE, AFTER, COVER, Phenology Classified, Window Classified, Pheno=Window, Classification for Action, and Classification for Unit.

Clicking inside the text box for each field causes a description of the field to pop up:
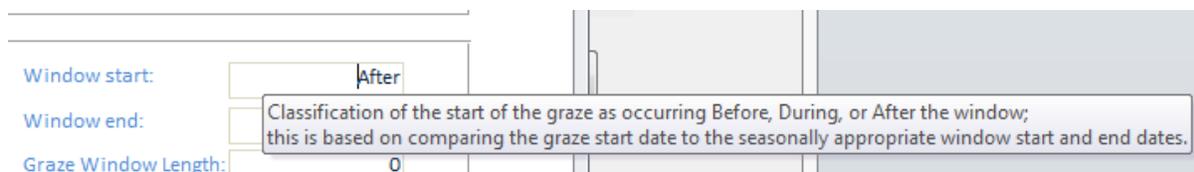
These descriptions are also provided in Appendix A.

The bottom portion of the screen shows the classification of the action based on unit-specific phenology and the classification of the action based on window data. Lastly, the classifications for the action and for the unit are listed. The rules used to make these classifications are detailed in Appendices B, C, and D.

At the bottom right, the coordinator tasks are highlighted by a red box. As with the Mixed Grass records, the coordinator must verify that every flagged record has been reviewed by checking the box and must select a reclassification action from the dropdown list (No Reclassification, Rest, or Non-NPAM Action) before proceeding. In addition, the

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coordinator has the option of entering any notes in the Coordinator Comments section. Once all the records are reviewed, the form can be closed by clicking the "x" in the upper right hand corner.

If Pheno=Window is "False", the record will be flagged to indicate that the unit-specific phenology and the window data are not in agreement. Given the inconsistency, the coordinator may wish to review the observer supplied phenological response(s) and the window dates, in conjunction with the management action date(s), and consider the quality of each set of data (i.e., unit-specific phenology versus window data). When the Pheno=Window field is false, the Reclassified Action dropdown list is augmented to include the Window Classified action in addition to the same three options as other flagged records (i.e., No Reclassification, Rest, Non-NPAM Action). The classification rules for the action (Appendix B) default to the Phenology Classified classification over the Window Classified classification. If deemed appropriate, the coordinator may override the default classification by reclassifying the action from the Phenology Classified classification to the Window Classified classification by selecting the Window Classified classification from the dropdown list. The other options (i.e., No Reclassification, Rest, and Non-NPAM Action) may also be selected.

If a burn or a graze action on a tall grass unit occurs during the fall (i.e., between 1 September and 31 December), a default comment will automatically be inserted in the comments section that reads, "[This is a fall treatment. Please do not delete this automatically inserted comment. – Cami Dixon]" and the record will be flagged for coordinator review (see example below). The comments field, along with the Start Date field, will be highlighted to call the coordinator's attention to the reason the record is flagged. Fall tall grass treatments are flagged because according to the current rules regarding tall grass cool-season windows, the fall window is undefined and thus fall treatments cannot be reliably classified as occurring within or outside of the window. For this reason, when such records are reviewed during Step 2b or 2c of the coordinator processing steps, the coordinator should select "Non-NPAM Action" from the 'Reclassified Action' dropdown list. In doing so, the 'Reclassified Treatment for Unit' will become "Unclassifiable", which will be reviewed and acted on in Step 3.

Step c:

To review the unclassifiable tall grass actions, the coordinator clicks "Review and Modify Unclassifiable Actions" under the Tall Grass Units section:

Figure 8: Tall Grass Unclassifiable (and Flagged) Actions Screen

The information on the screen is identical to the Flagged tall grass actions screen with the exception of two things: 1) the Classification for Action field is highlighted to show that it is "Unclassifiable"; and 2) the coordinator tasks box is slightly different (as detailed below). This form is used for tall grass actions that are unclassifiable, as well as tall grass actions that are both flagged AND unclassifiable. If the action is only unclassifiable, the coordinator tasks box will simply contain a dropdown box to reclassify the action:
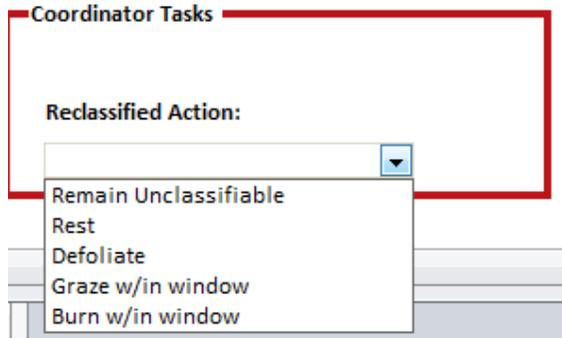
The coordinator can choose to keep the action as unclassifiable or to reclassify the action as one of the four NPAM classified actions. If "Remain Unclassifiable" is selected, the Classification for Unit will become "Unclassifiable", which will be revealed in Step 3 of the coordinator processing steps. During Step 3, the coordinator will have the opportunity to review the unit and determine if it will remain "Unclassifiable" or be reclassified. The details of reclassifying unit-level actions are discussed under Step 3.

If an action is both flagged AND unclassifiable, in addition to the dropdown box to reclassify the action, the coordinator tasks box will have a check box to mark the action as reviewed:
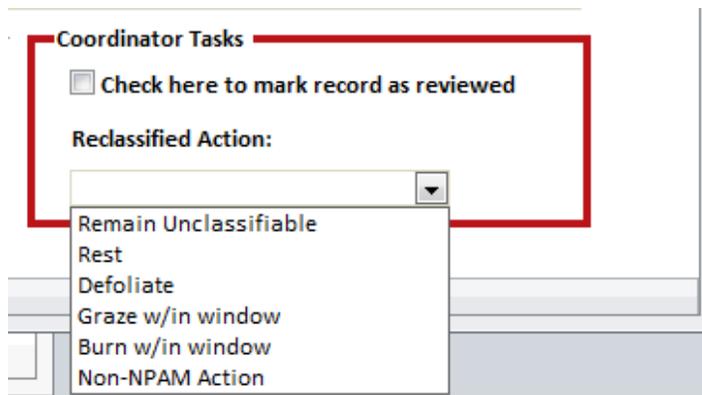
Additionally, the dropdown list for flagged AND unclassifiable actions is augmented from the unclassified-only list to include the reclassification option "Non-NPAM Action". As noted earlier for flagged-only actions, the "Non-NPAM Action" selection is available if the coordinator, once considering the flagged fields, determines that the action does not conform to the NPAM management action guidelines. Actions reclassified as "Non-NPAM Actions" will result in the Classification for Unit becoming "Unclassifiable", which will be revealed and dealt with in Step 3 of the coordinator processing steps.

The record must be marked as reviewed and a selection from the dropdown box must be made before the coordinator can proceed to the next processing step. Once all records have been completed, the coordinator can close the form by clicking the "x" in the upper right hand corner.

Step d:

When all of the records have been reviewed and a selection has been made from the Reclassified Treatment per Action dropdown list, the coordinator will click on the "Submit Updated Classifications" button.

If there remain records that have not been marked as reviewed or not assigned a reclassified action, the coordinator will get an alert. The number of records that need to be addressed will be listed in the alert. The coordinator will not be able to proceed to Step 3 until all items are addressed.

If the coordinator has chosen to select that any tall grass actions "Remain Unclassifiable", an alert will appear:
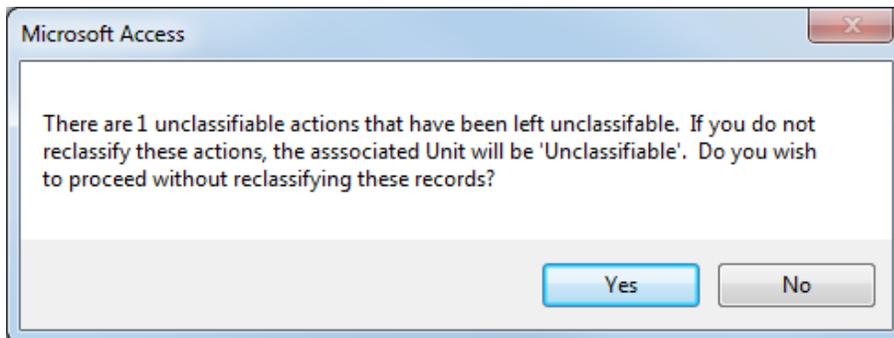
The coordinator can select "No" and return to modify the assigned reclassification of the unclassified actions, or can select "Yes" to leave the actions as unclassified and continue with submittal of the records.

Once the classifications have been submitted, the coordinator will receive an alert and Step 3 will become enabled.
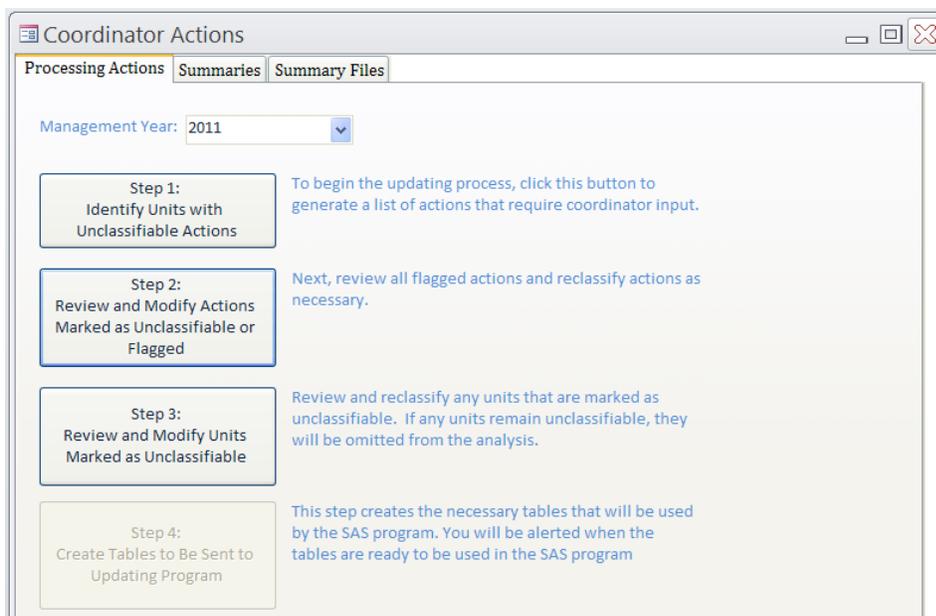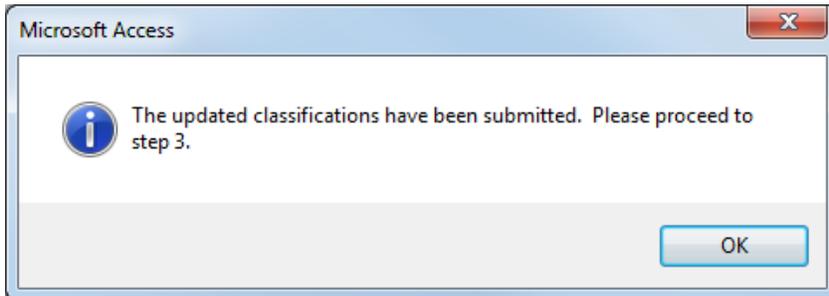
Step 3:

When the classifications are submitted from Step 2, any reclassifications of individual actions may result in a reclassification of the action for the unit. In certain instances the unit will be unclassifiable (see Appendix D for unit classification rules). In Step 3, the coordinator must review the unclassifiable units. When the coordinator clicks on the Step 3 button, the following window appears:
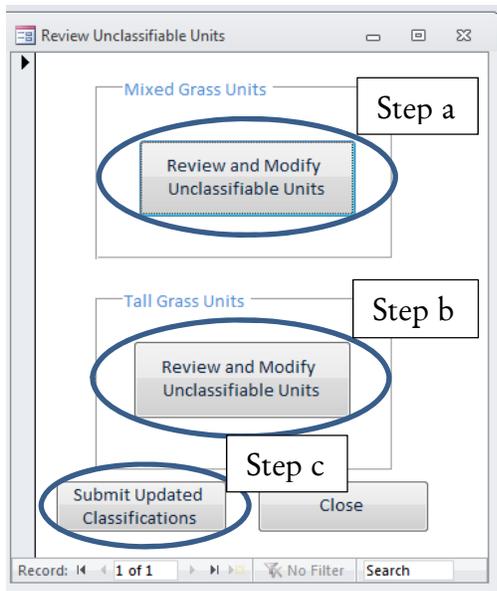
Figure 9: Review Unclassifiable Units Screen

In the upper portion of the form, there is a button to review and modify unclassifiable mixed grass units. A similar button appears in the lower half of the form for tall grass units.

Step a:

When the coordinator clicks the mixed grass button, the following screen will appear for mixed grass records that have the Unit Level Classification 'Reclassified Treatment for Unit' classified as "Unclassifiable":

Figure 10: Reclassify Mixed Grass Units Screen

The records are ordered alphabetically by Complex, Org, Unit, and Management Number. The top portion of the screen includes the basic unit information. The middle portion of the screen contains the records for each individual management action that was carried out on the unit within the given management year. The bottom portion of the screen shows the classification of the management action at the unit level, as well as the coordinator task and Coordinator Comments box. The 'Reclassified Treatment for Unit' field will always be highlighted for records that appear in Step 3 to reflect that the unit is unclassifiable.

The Management Action Information section in the middle portion of the screen indicates how many management actions were entered for the unit for the given management year:

The coordinator can review the individual management actions carried out on the unit by using the record selector buttons located in the middle portion of the screen.

The coordinator should review each individual action before making a final determination of the classification of the management action for the unit as a whole.

In addition to the field 'Reclassified Treatment for Unit' being highlighted, fields that contributed to the unit being unclassifiable are also highlighted. In the mixed grass example above, the field for 'Reclassified Action' is highlighted for management action 2 of 3 to draw the coordinator's attention to the cause of the unclassifiable unit; one of the three actions

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implemented on the unit had been reclassified from a Graze to a Rest during Step 2 of the coordinator processing steps. Based on mixed grass unit classification rules (Appendix D), if a Rest overlaps with other active treatments on a unit, the unit is considered unclassifiable.

Once the coordinator has reviewed all of the individual actions for the unclassifiable unit, she/he will select an option from the 'Reclassified Final Treatment for Unit' dropdown list on the bottom right. This list includes the option for the unit to remain unclassifiable or to be reclassified as one of the four NPAM mixed grass actions. Each unclassifiable unit must have a 'Reclassified Final Treatment for Unit' selected.
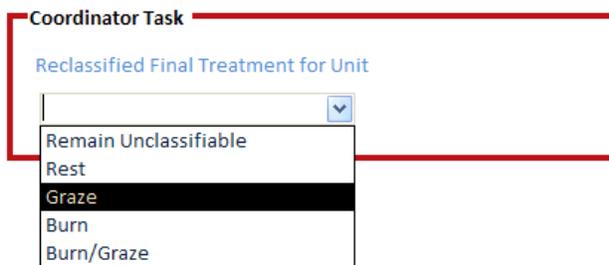
If more than one unit is unclassifiable, the record navigation buttons allow the coordinator to scroll to the next unit:
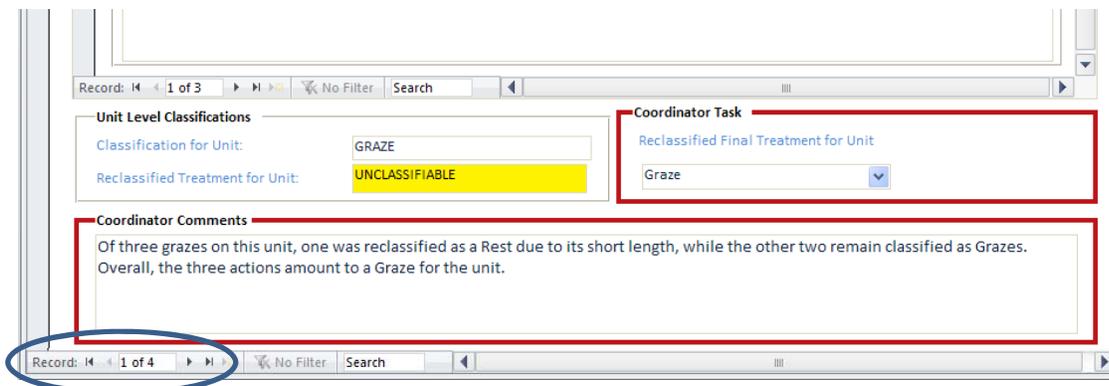
Once all unclassified units have been reviewed and a reclassification selected, the coordinator uses the "x" in the upper right hand corner to close the screen.

Step b:
When the coordinator clicks the tall grass button, the following screen will appear for tall grass records that have the Unit Level Classification 'Reclassified Treatment for Unit' classified as "Unclassifiable":

Figure 11: Reclassify Tall Grass Units Screen

The records are ordered alphabetically by Complex, Org, Unit, and Management Number. The screen is equivalent to the mixed grass screen with the exception of the layout. The unit-level classifications and coordinator tasks are to the right of the management action data. As

with the mixed grass screen, the 'Reclassified Treatment for Unit' field is highlighted to reflect that the unit is unclassifiable (and hence the reason the record is being reviewed in Step 3). Additionally, fields that contributed to the unit being unclassifiable are also highlighted. In the tall grass example above (figure 11), the field for 'Classification for Unit' is highlighted to draw the coordinator's attention to the cause of the unclassifiable unit; based on tall grass unit classification rules (Appendix D), the individual actions carried out on this unit resulted in an unclassifiable unit-level action. The management action portion of the screen includes the individual actions carried out on the unit within the given management year. Closer examination of the example (figure 11), reveals that two actions were carried out on the unit during the management year: a burn and a graze. According to tall grass rules, the burn has a 'Classification for Action' of Defoliate, while the graze has a 'Classification for Action' of Graze within window. These two individual actions combined on a single unit result in an unclassifiable unit-level action (see Appendix D). 'Classification for Unit' shows how the unit was classified based on the 'Classification for Action'(s). Note, too, that the 'Reclassified Action' field is highlighted; this notifies the coordinator that it is the immediate reason that the 'Reclassified Treatment for Unit' is classified as unclassifiable. When this unit was reviewed during Step 2c of the Coordinator Processing steps, the burn action was re-classified by the coordinator to a Non-NPAM Action because it was a fall treatment. The two individual actions (i.e., Non-NPAM Action and Graze within window) combined on a single unit also result in an unclassifiable unit-level action (see Appendix D). 'Reclassified Treatment for Unit' shows how the unit was reclassified based on 'Reclassified Actions'(s).

The coordinator must select a 'Reclassified Final Treatment for Unit' from the dropdown field.

The dropdown contains the option to keep the unit as unclassifiable or to be reclassified to one of the four NPAM tall grass actions. The coordinator must make a selection for each unclassifiable unit before proceeding to Step 4. Once all units have been reviewed and reclassified, the coordinator clicks on the "x" to close the screen.

Step c:

To move on to Step 4, the coordinator clicks on the "Submit Updated Classifications" button. If any units have not been reclassified, a warning will appear:
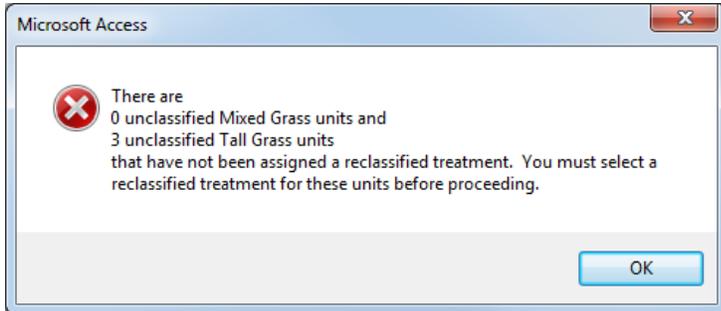
If the coordinator selected that one or more units should "Remain Unclassifiable", an alert will appear:
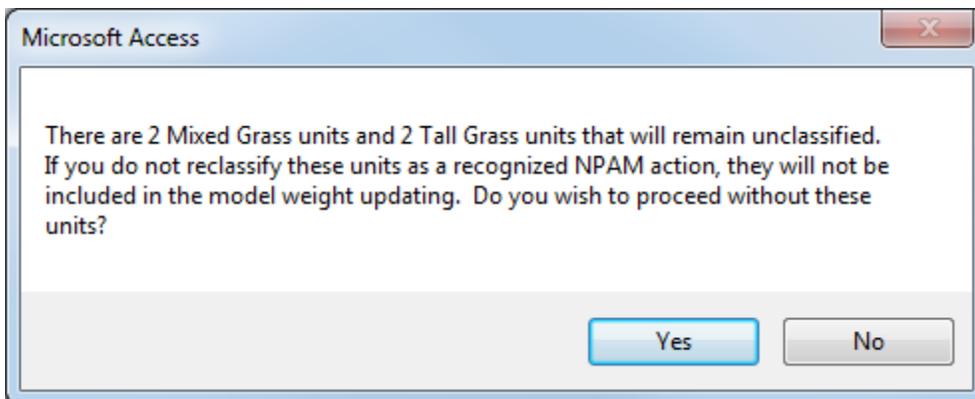
Once all records have been reviewed, the coordinator will be able to proceed to Step 4:
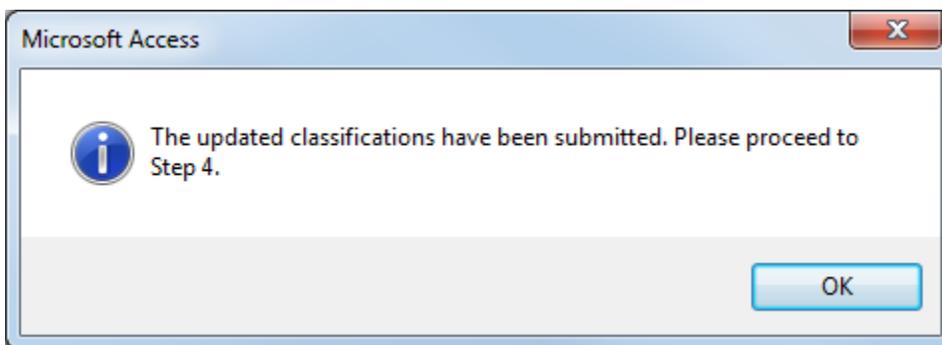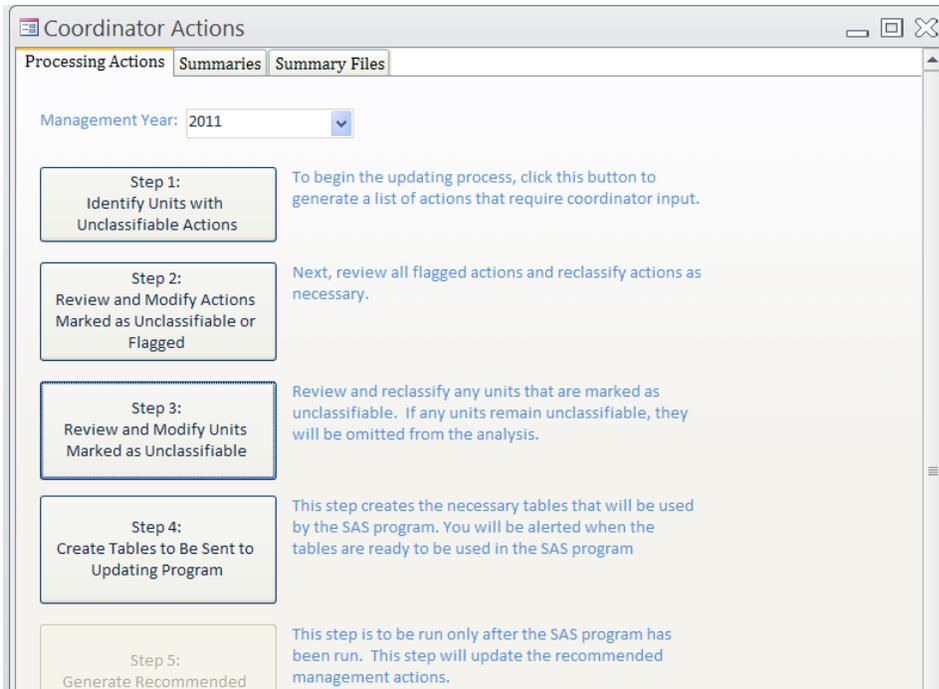
Step 4:

When the coordinator clicks the button for Step 4, an alert will appear:
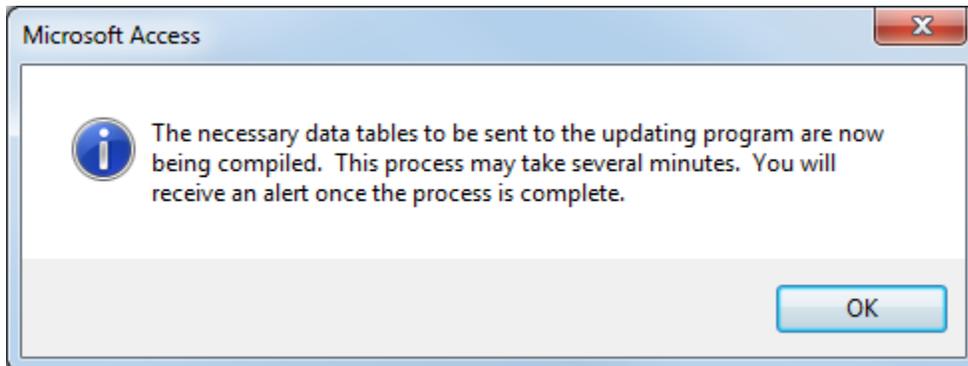
In the background, Access is creating several tables that are used by the SAS program. To create the tables, Access compiles the raw monitoring and management data to determine the state for each unit. This information is then used by the SAS program to update the weights on each of the alternative models according to their performance (i.e., according to how well each model predicted the observed outcomes). The coordinator is notified when the process is complete:
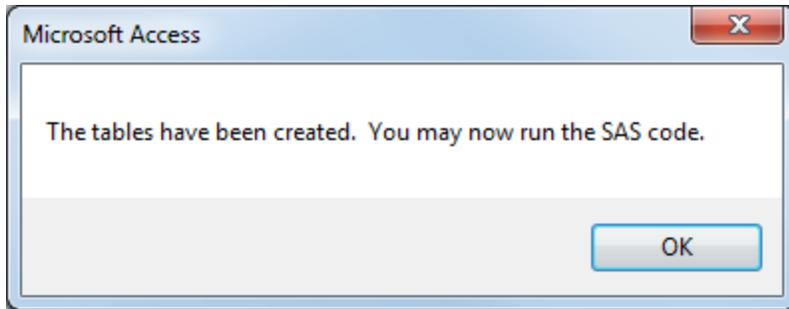
At this point, the button for Step 5 becomes enabled.
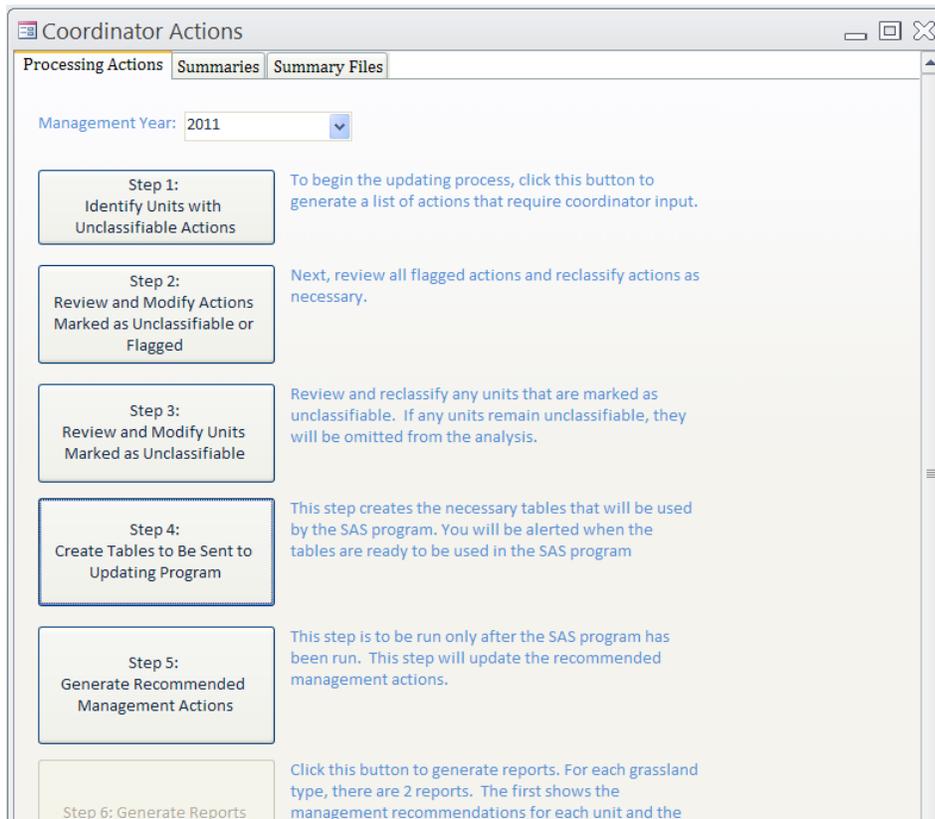
The coordinator can click on "Step 5", but the button will give an error if the SAS code has not already been run.
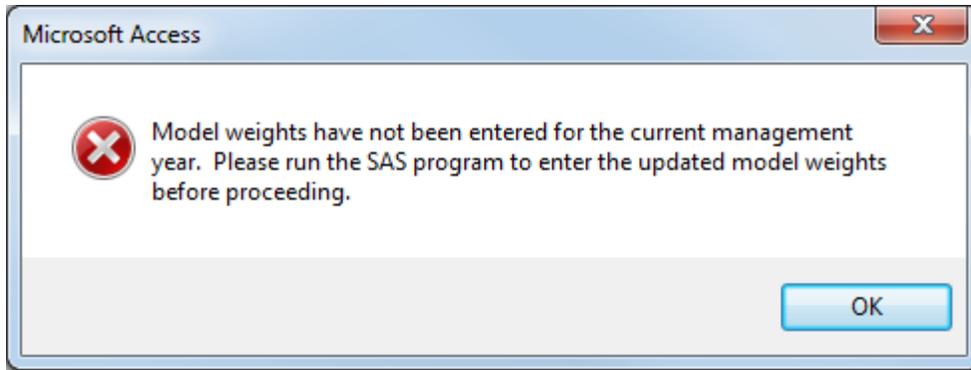
To proceed, the coordinator must run the SAS program, which will insert the updated model weights into the appropriate table. Once the SAS program has run, the coordinator can proceed with Step 5.

Step 5:

Before running Step 5, the coordinator must be connected to the NPAM site on SharePoint. This is to allow the Access database to upload the recommended actions to the table tlu_RecAction on SharePoint. If the coordinator is not connected to SharePoint, the following alert will appear:
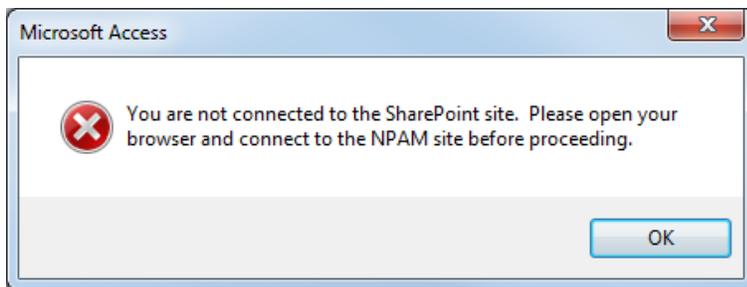
Once connected to SharePoint, the coordinator proceeds with Step 5 by clicking the "Step 5" button. In the background, Access runs several queries that select the current optimal policy from the optimal table and then matches the state of each unit to the recommended management action in the policy. The result of this step is the creation of the recommended management actions tables that are used to create the recommended management actions reports. Additionally, Access will communicate with SharePoint and update the recommendation table to be used on SharePoint. When the processing is complete, an alert appears:
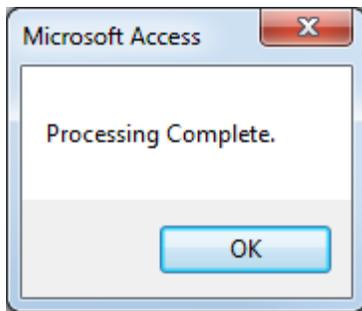
Step 6:

At this point, the "Step 6" button becomes enabled.
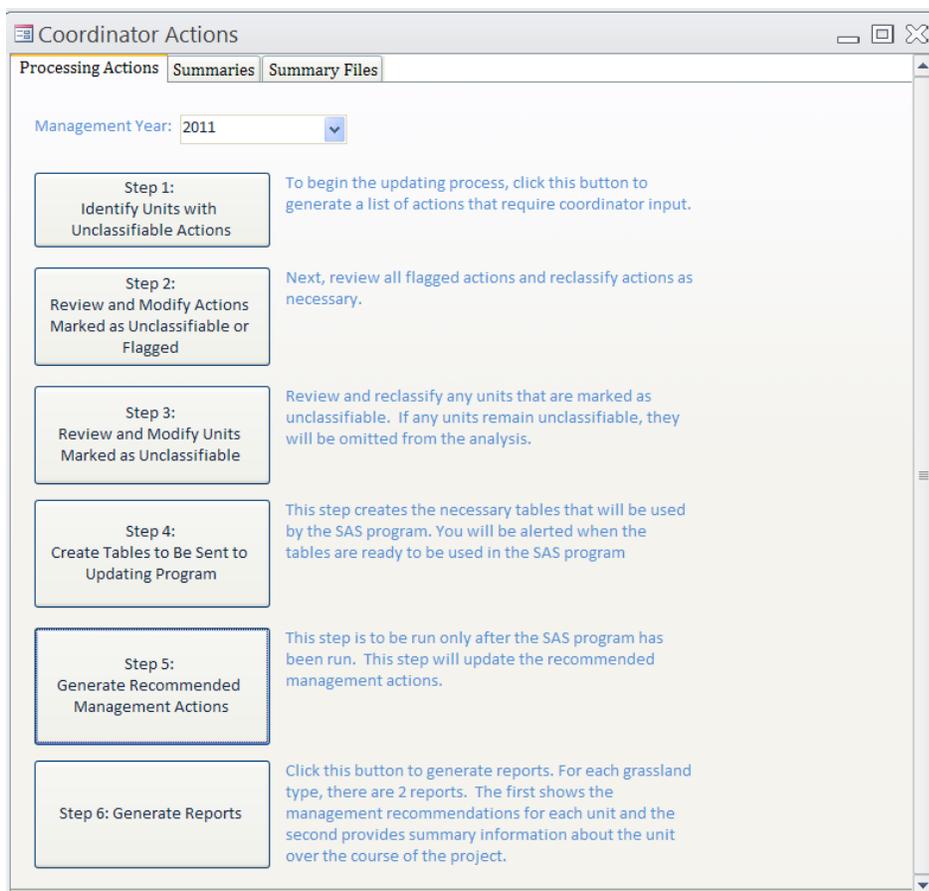
The coordinator clicks on Step 6 and the following screen will appear:
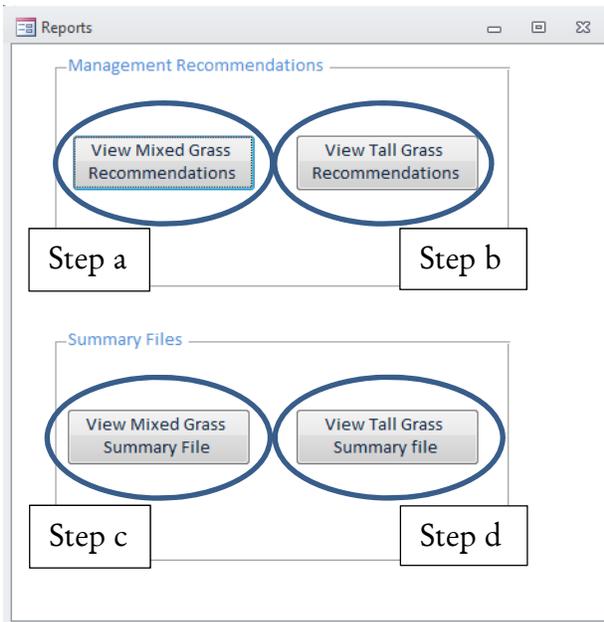
Figure 12: Reports Screen

The top portion of the screen contains two buttons to generate a report that contains the management recommendations for mixed grass units and tall grass units. The bottom portion of the screen contains two buttons to generate a report containing summary information for the mixed grass and tall grass units. The reports are shown below:

Step a and Step b:

The management recommendation reports for mixed and tall grass units include the current vegetation and defoliation state of each unit that was active in NPAM and provided vegetation and management data for the current management year. Along with the current state of each unit, management restrictions and the recommended management action for the coming management year are identified. This report is furnished to the cooperators by 31 August of each year.

Figure 13: Management Recommendations for Mixed Grass Units

Mixed Grass Recommendations

Management Recommendations for Mixed Grass Units in 2012

Monday, July 23, 2012
11:43:49 AM

Grassland	Complex	Org	Unit	Year	NP Proportion	SB Proportion	KB Proportion	RM Proportion	Vegetation State	Defoliation Level	Years Since Level	Management Restriction	Recommended Managment Action
Mixed Grass Prairie	ARROWWOOD COMPLEX	ARROWWOOD NWR	G14 Pasture 1	2011	0.27	0.22	0.27	0.23	{0-30, Co}	Med	2-4	None	REST
Mixed Grass Prairie	ARROWWOOD COMPLEX	ARROWWOOD NWR	G14 Pasture 2	2011	0.23	0.18	0.24	0.34	{0-30, Co}	Med	2-4	None	REST
Mixed Grass Prairie	ARROWWOOD COMPLEX	ARROWWOOD NWR	G26 Paddock 1	2011	0.02	0.00	0.87	0.12	{0-30, KB}	High	1	None	GRAZE
Mixed Grass Prairie	ARROWWOOD COMPLEX	ARROWWOOD NWR	G26 Paddock 2	2011	0.45	0.05	0.36	0.14	{45-60, KB}	High	1	None	REST
Mixed Grass Prairie	ARROWWOOD COMPLEX	ARROWWOOD NWR	G26 Paddock 3	2011	0.25	0.33	0.34	0.08	{0-30, Co}	High	1	None	GRAZE
Mixed Grass Prairie	ARROWWOOD COMPLEX	ARROWWOOD NWR	G26 Paddock 4	2011	0.09	0.23	0.54	0.14	{0-30, KB}	High	1	None	GRAZE
Mixed Grass Prairie	ARROWWOOD COMPLEX	ARROWWOOD NWR	G28	2011	0.23	0.09	0.51	0.17	{0-30, KB}	Low	1	None	BURN/GRAZE
Mixed Grass Prairie	ARROWWOOD COMPLEX	EDDY COUNTY WPA	Haven Paddock 4	2011	0.83	0.01	0.04	0.13	{60-100, RM}	High	1	None	REST
Mixed Grass Prairie	ARROWWOOD COMPLEX	EDDY COUNTY WPA	Haven Paddock 5	2011	0.51	0.14	0.26	0.09	{45-60, Co}	High	1	No Burn, B/G	GRAZE
Mixed Grass Prairie	ARROWWOOD COMPLEX	FOSTER COUNTY WPA	Topp West Paddock	2011	0.50	0.04	0.28	0.18	{45-60, KB}	High	2-4	None	REST
Mixed Grass Prairie	ARROWWOOD COMPLEX	GRIGGS COUNTY WPA	Wogsland	2011	0.46	0.25	0.20	0.09	{45-60, Co}	Low	5+	None	BURN/GRAZE

Figure 14: Management Recommendations for Tall Grass Units

Step c:

The summary file for mixed grass units includes the management, defoliation state, and vegetation state of each unit for the time period from the inception of NPAM (2009) to the most recently processed management year. Only years for which the unit was active are listed. The field "Management Applied" contains the actual action that was implemented on the unit (e.g., Rest, Graze, Burn, Burn/Graze), while the field "Management Classified" contains the final classification of the implemented management actions into one of the four recognized NPAM actions for mixed grass units. Units noted as "Unclassifiable" are those with implemented management actions that did not conform to or could not be accurately assigned to one of the four recognized NPAM actions.

Grassland	Complex	Org	Unit	Management Year	Management Applied	Management Classified	Defoliation Level	Years Since Level	Vegetation State
Mixed Grass Prairie	LAKE ANDES NWR	BON HOMME COUNTY WPA	Hieb	2010	REST	N/A	Low	2-4	{30-45, SB}
Mixed Grass Prairie	LAKE ANDES NWR	BON HOMME COUNTY WPA	Hieb	2011	GRAZE	GRAZE	Low	1	{60-100, SB}
Mixed Grass Prairie	LAKE ANDES NWR	BON HOMME COUNTY WPA	Hieb	2012	GRAZE	GRAZE	Med	1	{60-100, SB}
Mixed Grass Prairie	LAKE ANDES NWR	CHARLES MIX COUNTY WPA	Trout	2011	REST	REST	Med	2-4	{0-30, SB}
Mixed Grass Prairie	LAKE ANDES NWR	CHARLES MIX COUNTY WPA	Trout	2012	GRAZE	GRAZE	Med	1	{0-30, SB}
Mixed Grass Prairie	LAKE ANDES NWR	DOUGLAS COUNTY WPA	Denning	2010	REST	N/A	Low	2-4	{0-30, SB}
Mixed Grass Prairie	LAKE ANDES NWR	DOUGLAS COUNTY WPA	Denning	2011	GRAZE	UNCLASSIFIABLE	Low	1	{0-30, SB}
Mixed Grass Prairie	LAKE ANDES NWR	DOUGLAS COUNTY WPA	Denning	2012	GRAZE	GRAZE	Med	1	{0-30, SB}
Mixed Grass Prairie	LONG LAKE WMD	BURLEIGH COUNTY WPA	Crimmins NE Grazing Unit	2009	N/A	N/A	Med	1	{0-30, Co}
Mixed Grass Prairie	LONG LAKE WMD	BURLEIGH COUNTY WPA	Crimmins NE Grazing Unit	2010	REST	N/A	Med	2-4	{0-30, Co}
Mixed Grass Prairie	LONG LAKE WMD	BURLEIGH COUNTY WPA	Crimmins NE Grazing Unit	2011	BURN	BURN	Med	1	{0-30, Co}
Mixed Grass Prairie	LONG LAKE WMD	BURLEIGH COUNTY WPA	Crimmins NE Grazing Unit	2012	REST	REST	Med	2-4	{0-30, Co}
Mixed Grass Prairie	LONG LAKE WMD	BURLEIGH COUNTY WPA	Rath WPA - #1 Grazing Unit	2009	N/A	N/A	Low	1	{45-60, SB}
Mixed Grass Prairie	LONG LAKE WMD	BURLEIGH COUNTY WPA	Rath WPA - #1 Grazing Unit	2010	GRAZE	N/A	Med	1	{30-45, Co}
Mixed Grass Prairie	LONG LAKE WMD	BURLEIGH COUNTY WPA	Rath WPA - #1 Grazing Unit	2011	GRAZE	GRAZE	Med	1	{30-45, Co}
Mixed Grass Prairie	LONG LAKE WMD	BURLEIGH COUNTY WPA	Rath WPA - #1 Grazing Unit	2012	GRAZE	GRAZE	Med	1	{30-45, Co}

Figure 15: Summary of Mixed Grass Units

Step d:

The summary file for tall grass units includes the management, defoliation state, and vegetation state of each unit for the time period from the inception of NPAM (2009) to the most recently processed management year. Only years for which the unit was active are listed. The field "Management Applied" contains the actual action that was implemented on the unit (e.g., Rest, Hay, Graze, Burn, Burn/Graze), while the field "Management Classified" contains the final classification of the implemented management actions into one of the four recognized NPAM actions for tall grass units (i.e., Rest, Defoliate, Graze within window, Burn within window). "Management Classified" for 2009 and 2010 is denoted as "N/A" because the final tall grass framework was not completed until 2011 (namely, the concept of the cool-season window had not yet been developed). Units noted as "Unclassifiable" are those with implemented management actions that did not conform to or could not be accurately assigned to one of the four recognized NPAM actions.

Summary of Tall Grass States from Project Inception (2009) to Present

Saturday, September 01, 2012 5:39:10 PM

Grassland	Complex	Org	Unit	Management Year	Management Applied	Management Classified	Defoliation Level	Years Since Level	Vegetation State
Tall Grass Prairie	WAUBAY NWR COMPLEX	CODINGTON COUNTY WPA	Roe E	2009	N/A	N/A	Low	2-4	{0-30, SB}
Tall Grass Prairie	WAUBAY NWR COMPLEX	CODINGTON COUNTY WPA	Roe E	2010	REST	N/A	Low	5+	{0-30, Co}
Tall Grass Prairie	WAUBAY NWR COMPLEX	CODINGTON COUNTY WPA	Roe E	2011	BURN/GRAZE	Unclassifiable	Med	1	{0-30, SB}
Tall Grass Prairie	WAUBAY NWR COMPLEX	CODINGTON COUNTY WPA	Roe E	2012	GRAZE	Graze w/in window	Med	1	{0-30, Co}
Tall Grass Prairie	WAUBAY NWR COMPLEX	CODINGTON COUNTY WPA	Roe F	2009	N/A	N/A	Low	2-4	{0-30, SB}
Tall Grass Prairie	WAUBAY NWR COMPLEX	CODINGTON COUNTY WPA	Roe F	2010	REST	N/A	Low	2-4	{0-30, Co}
Tall Grass Prairie	WAUBAY NWR COMPLEX	CODINGTON COUNTY WPA	Roe F	2011	BURN/GRAZE	Unclassifiable	Med	1	{0-30, KB}
Tall Grass Prairie	WAUBAY NWR COMPLEX	CODINGTON COUNTY WPA	Roe F	2012	BURN	Burn w/in window	Med	1	{0-30, Co}
Tall Grass Prairie	WAUBAY NWR COMPLEX	MARSHALL COUNTY WPA	Buffalo Lake	2010	REST	N/A	Med	2-4	{30-45, Co}
Tall Grass Prairie	WAUBAY NWR COMPLEX	MARSHALL COUNTY WPA	Buffalo Lake	2011	REST	Rest	Low	2-4	{0-30, Co}
Tall Grass Prairie	WAUBAY NWR COMPLEX	MARSHALL COUNTY WPA	Buffalo Lake	2012	REST	Rest	Low	2-4	{30-45, SB}
Tall Grass Prairie	WAUBAY NWR COMPLEX	MARSHALL COUNTY WPA	Buss Paddock 1	2010	REST	N/A	Low	5+	{0-30, Co}
Tall Grass Prairie	WAUBAY NWR COMPLEX	MARSHALL COUNTY WPA	Buss Paddock 1	2011	GRAZE	Defoliate	Low	1	{0-30, Co}
Tall Grass Prairie	WAUBAY NWR COMPLEX	MARSHALL COUNTY WPA	Buss Paddock 1	2012	GRAZE	Defoliate	Low	1	{0-30, SB}

Figure 16: Summary of Tall Grass Units

The coordinator can export each report to excel or a PDF. This is accomplished by clicking on the icon in the upper left hand portion of the screen:
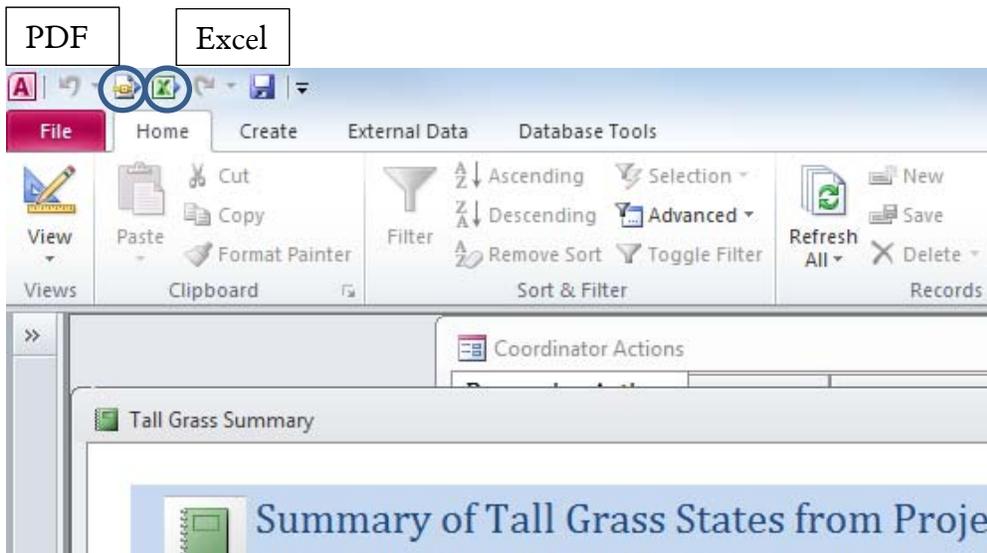
When the excel icon is clicked, the following screen appears. The coordinator can enter the file name and format.

The report will then open in excel:

Access will give an alert that the export was successful:
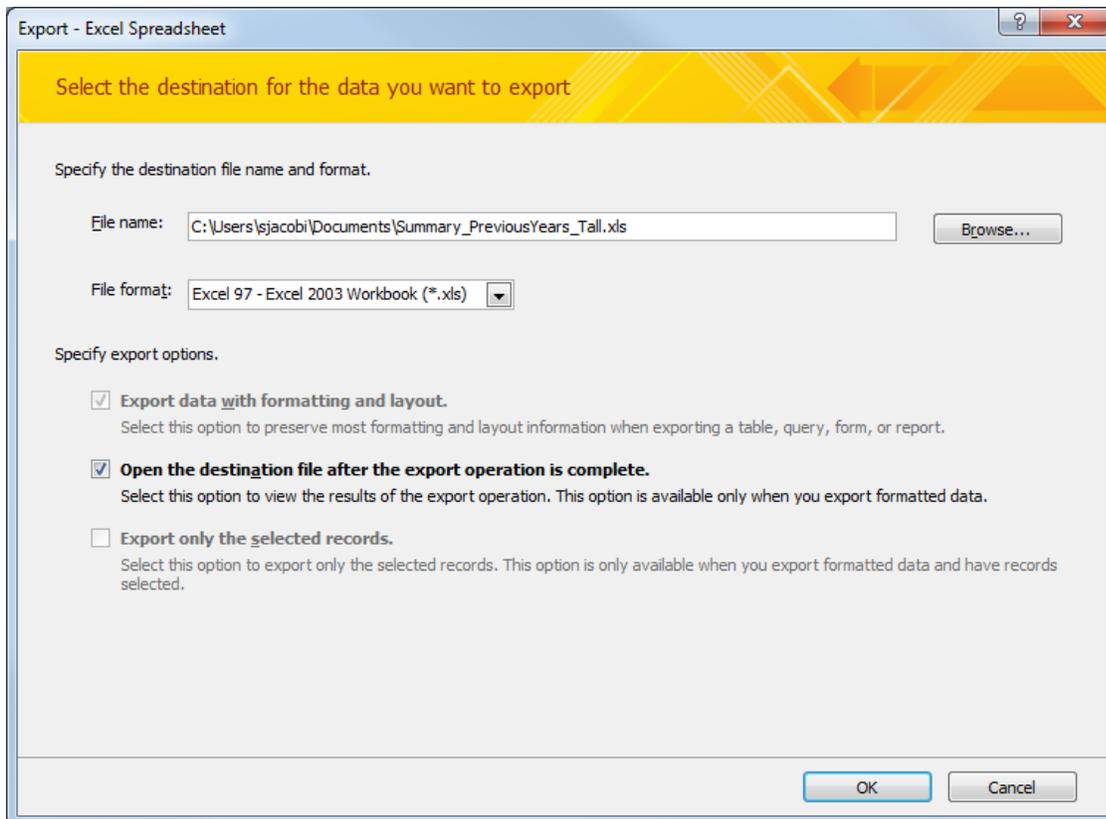
When the PDF button is clicked, a window will appear asking for the name of the PDF file to create. Once the name is entered, the coordinator clicks "Publish".
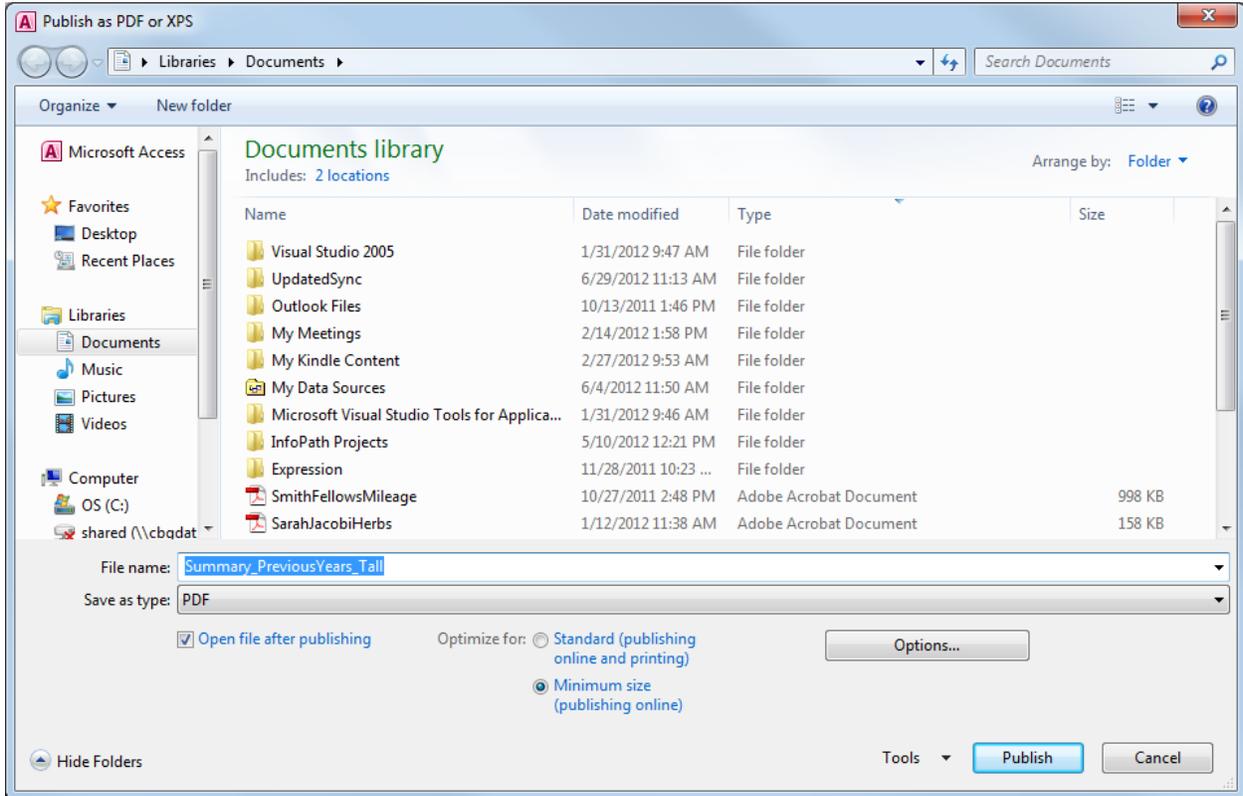
The PDF of the report then opens:

Access will alert the coordinator that the export was successful.
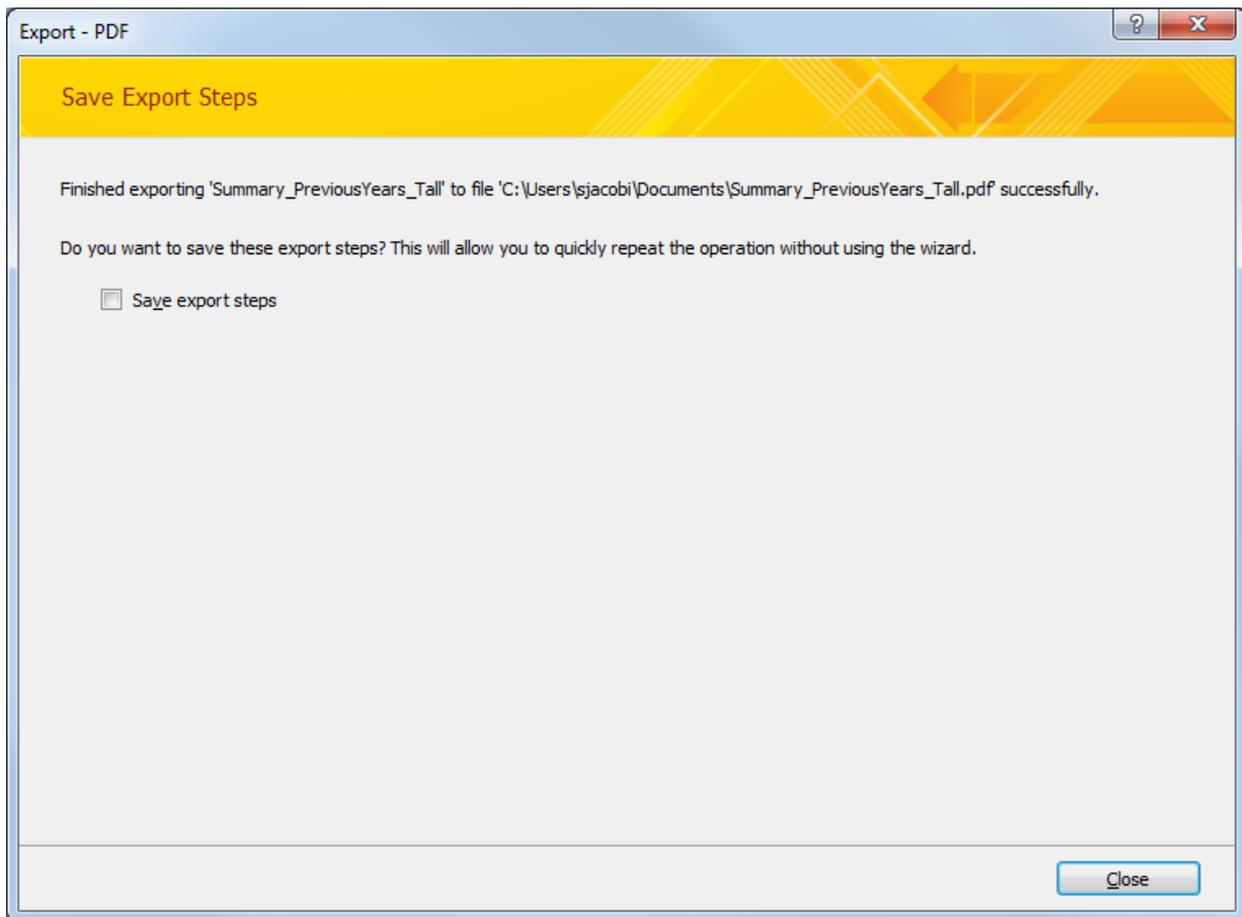
Summaries Tab

In addition to the Processing Actions tab, the Coordinator Actions screen has two additional tabs. The second tab is called Summaries.
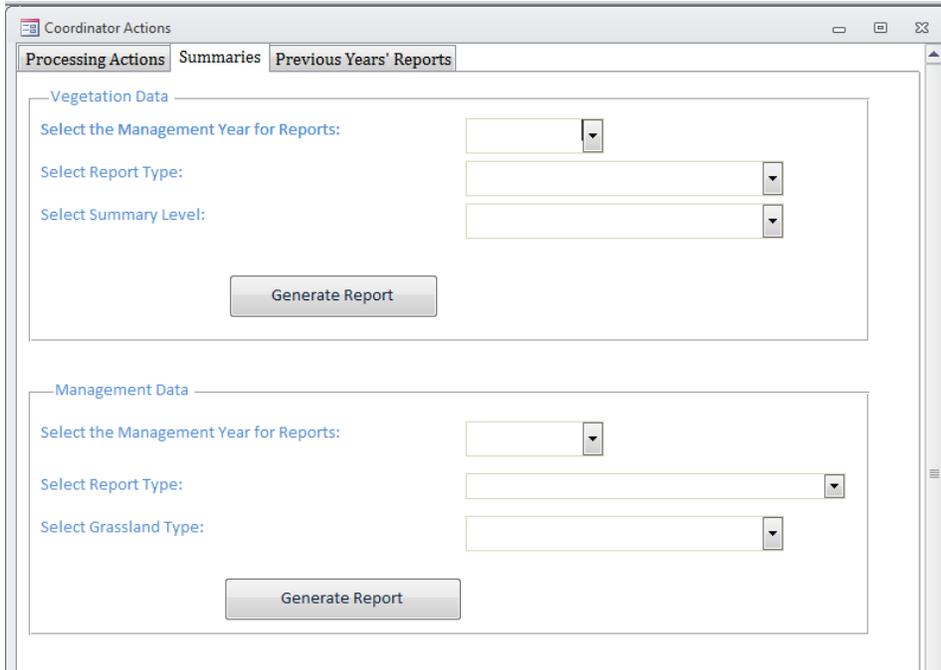
Figure 17: Summaries Screen

Vegetation Data

At the top of the form, there are several dropdown boxes for Vegetation Data summaries. The bottom portion of the form has several dropdown boxes for Management Data summaries. All years for which data exists are listed in the Management Year dropdown for vegetation data:

For each year, there are several available report types:
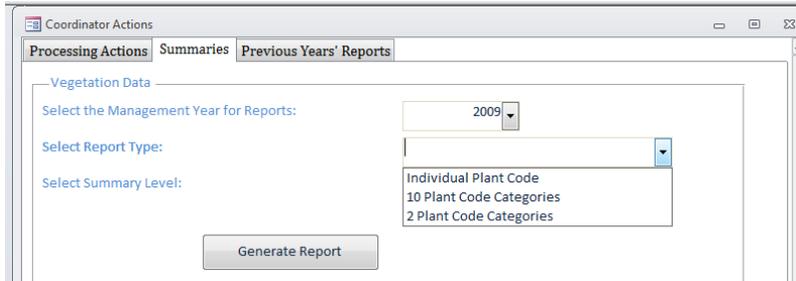
The levels available in the Summary Level dropdown depend on the Report Type selected. The individual plant code report can only be summarized at the state level. The other two reports can be summarized at the state level or the entire project level. Each report is shown below:

Figure 18: Individual Plant Code by State Summary

Ten Plant Code Categories for Entire Project in 2011

Tuesday, July 24, 2012
2:33:34 PM

Description	Percentage	Number of Stops along Transects
Crested Wheatgrass	1.10%	1223
Kentucky Bluegrass	28.82%	31974
Low Shrub	4.85%	5381
Not Applicable	4.39%	4872
Native Grass-Forb	35.03%	38857
Noxious & Other Weeds	2.58%	2865
Other	2.38%	2637
Quackgrass	0.86%	958
Reed-Canarygrass	0.65%	720
Smooth Brome	18.83%	20886
Tall Shrub/Tree	0.50%	555
Total:	100.00%	110928

Page 1 of 1

Figure 19: Ten Plant Code Categories for Entire Project Summary

Figure 20: Ten Plant Code Categories by State Summary

Figure 21: Two Plant Code Categories for Entire Project Summary

Figure 22: Two Plant Code Categories by State Summary

Management Data

For the Management Data summaries, there are three report types: Classified Management Action, Recommended versus Implemented Action, and Recommended and Implemented Action by Unit. For the 2009 and 2010 management years, the Classified Management Action report for Mixed Grass units is the only available management data summary. This restriction is the result of two things: (1) management recommendations were not provided until the 2011 management year and (2) modifications of the tallgrass framework (namely, the addition of the cool-season window concept) prevented tallgrass actions from being properly classified as one of the accepted NPAM alternatives until the 2011 management year. For 2011 and beyond, each report type is available for each grassland type. Note that the Recommended and Implemented Action by Unit shows both grassland types on a single report. The reports are shown below:

Mixed Grass Implemented Management Actions in 2012

Implemented Management Action (Classified)	Percentage	Number of Units
BURN	12.20%	10
BURN/GRAZE	18.29%	15
GRAZE	40.24%	33
REST	28.05%	23
UNCLASSIFIABLE	1.22%	1
Total:	100.00%	82

Figure 23: Mixed Grass Implemented Management Actions Summary

Tall Grass Implemented Management Actions in 2012

Implemented Management Actions (Classified)	Percentage	Number of Units
BURN W/IN WINDOW	13.51%	5
DEFOLIATE	27.03%	10
GRAZE W/IN WINDOW	8.11%	3
REST	40.54%	15
UNCLASSIFIABLE	10.81%	4
Total:	100.00%	37

Figure 24: Tall Grass Implemented Management Actions Summary

Percentage Recommended Versus Implemented Management Actions for Mixed Grass Units in 2012

Friday, September 07, 2012
2:31:50 PM

Recommended Management Action	Implemented Management Action (Classified)					Number of Units for Recommended Action
	BURN	BURN/GRAZE	GRAZE	REST	UNCLASSIFIABLE	
BURN	33.33%	25.00%	8.33%	33.33%	0.00%	12
BURN/GRAZE	9.09%	27.27%	18.18%	45.45%	0.00%	11
GRAZE	2.44%	12.20%	65.85%	17.07%	2.44%	41
REST	17.65%	23.53%	17.65%	41.18%	0.00%	17

Figure 25: Percentage Recommended Versus Implemented Management Actions for Mixed Grass Units Summary

Percentage Recommended Versus
Implemented Management Action
for Tall Grass Units in 2012

Recommened Management Action	Implemented Management Action (Classified)					Number of Units for Recommended Action
	BURN W/IN WINDOW	DEFOLIATE	GRAZE W/IN WINDOW	REST	UNCLASSIFIABLE	
BURN W/IN WINDOW	22.73%	27.27%	0.00%	45.45%	4.55%	22
DEFOLIATE	0.00%	66.67%	0.00%	33.33%	0.00%	3
GRAZE W/IN WINDOW	0.00%	18.18%	27.27%	27.27%	27.27%	11
REST	0.00%	0.00%	0.00%	100.00%	0.00%	1

Figure 26: Percentage Recommended versus Implemented Management Actions for Tall Grass Units Summary

Recommended Versus Implemented Management
Actions by Unit in 2012

Grassland	Complex	Org	Unit	Recommended Management Action	Implemented Management Action (Classified)
Mixed Grass Prairie	ARROWWOOD COMPLEX	ARROWWOOD NWR	G14 Pasture 1	REST	BURN
Mixed Grass Prairie	ARROWWOOD COMPLEX	ARROWWOOD NWR	G14 Pasture 2	REST	BURN
Mixed Grass Prairie	ARROWWOOD COMPLEX	ARROWWOOD NWR	G26 Paddock 1	GRAZE	GRAZE
Mixed Grass Prairie	ARROWWOOD COMPLEX	ARROWWOOD NWR	G26 Paddock 2	REST	BURN/GRAZE
Mixed Grass Prairie	ARROWWOOD COMPLEX	ARROWWOOD NWR	G26 Paddock 3	GRAZE	GRAZE
Mixed Grass Prairie	ARROWWOOD COMPLEX	ARROWWOOD NWR	G26 Paddock 4	GRAZE	GRAZE
Mixed Grass Prairie	ARROWWOOD COMPLEX	ARROWWOOD NWR	G28	BURN/GRAZE	REST
Mixed Grass Prairie	ARROWWOOD COMPLEX	EDDY COUNTY WPA	Haven Paddock 4	REST	BURN/GRAZE
Mixed Grass Prairie	ARROWWOOD COMPLEX	EDDY COUNTY WPA	Haven Paddock 5	GRAZE	BURN/GRAZE
Mixed Grass Prairie	ARROWWOOD COMPLEX	FOSTER COUNTY WPA	Topp East Paddock	BURN/GRAZE	BURN/GRAZE
Mixed Grass Prairie	ARROWWOOD COMPLEX	FOSTER COUNTY WPA	Topp West Paddock	REST	BURN/GRAZE
Mixed Grass Prairie	ARROWWOOD COMPLEX	GRIGGS COUNTY WPA	Wogsland	BURN/GRAZE	REST
Mixed Grass Prairie	ARROWWOOD COMPLEX	STUTSMAN COUNTY WPA	Odegaard	GRAZE	REST
Mixed Grass Prairie	ARROWWOOD COMPLEX	STUTSMAN COUNTY WPA	Winberg Unit 1	BURN	BURN

Figure 27: Recommended Versus Implemented Management Actions by Unit Summary

Previous Years' Reports Tab

The last tab on the Coordinator Actions screen is the Summary Files tab:
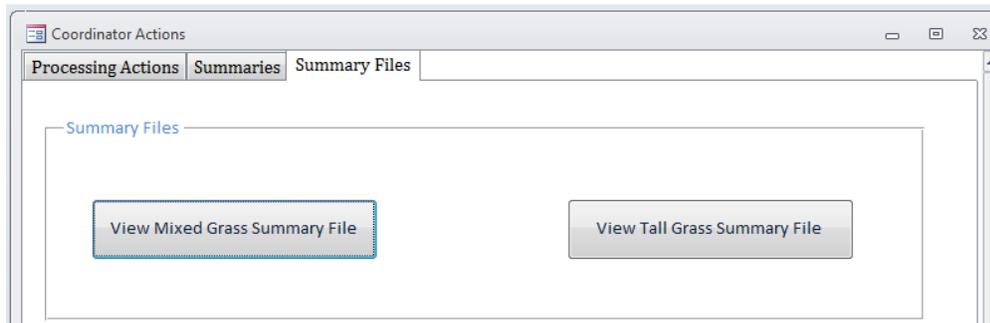
Figure 28: Previous Years' Reports Screen

This screen is used to view the summary file reports for previous year's data that have already been processed. These reports will include summaries of data from project inception (2009) up to the most recent year that has been processed. The reports are made available in this tab, rather than solely under Step 6 of the Processing Actions tab, to allow the coordinator to easily view summaries of previous year's data that have already been processed without going through a "short cuts" version of the Processing Steps (described below). Additionally, the availability of the reports under this tab allows the coordinator to view summaries of previous year's data at any time during the annual cycle, and not simply when processing data for the current year.

Short Cuts

If the coordinator needs to stop working before all the processing actions are completed, the coordinator will be able to use "short cuts" to return to the last completed step when the Access database is reopened.

Whenever the database is opened, the Processing Actions tab will appear with all the buttons disabled, regardless of the completion of any processing actions previously. However, if a step has previously been completed, the coordinator will have the option of moving to the next step as described below.
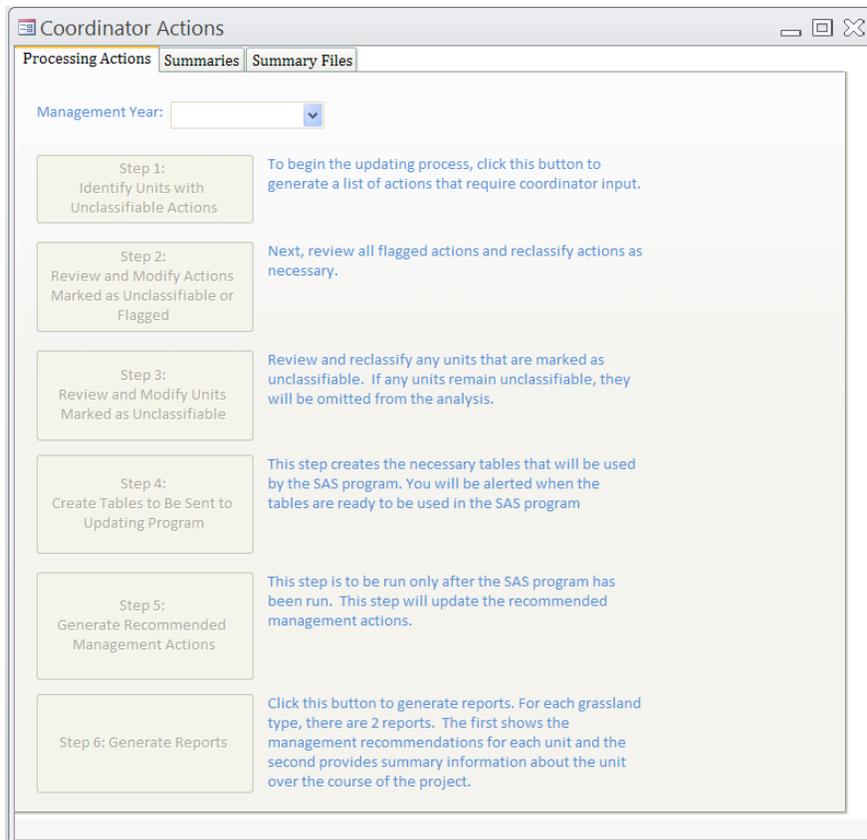
Step 1:

When the coordinator selects a management year and clicks on "Step 1", the following alert appears if the coordinator has already completed Step 1 for the selected year.
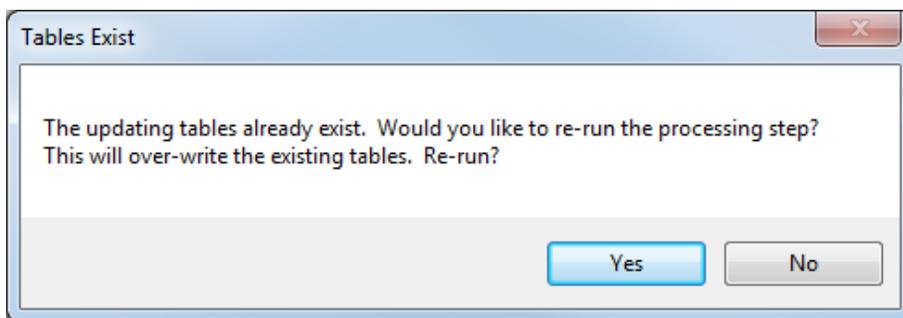
If the coordinator doesn't wish to re-run this processing step, he/she clicks "No" and Step 2 becomes enabled.
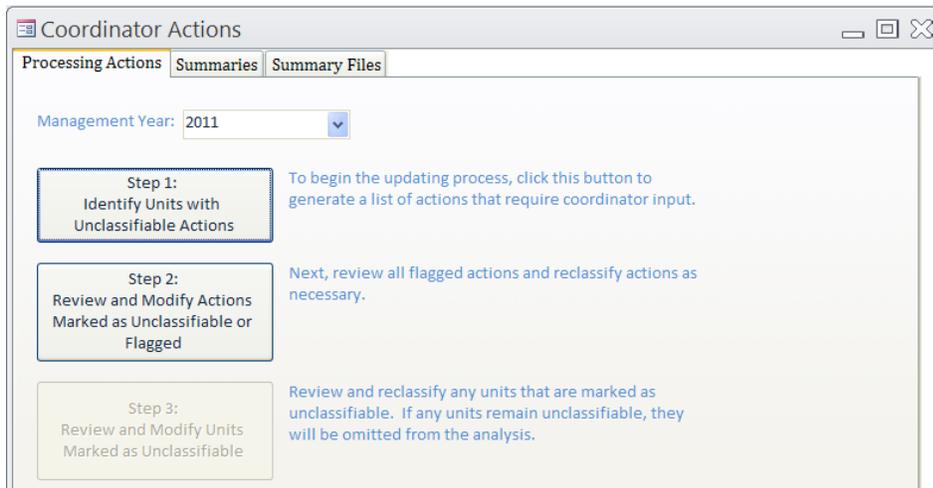
After clicking on "Step 2", if the coordinator has already reviewed the flagged and unclassifiable actions, she/he can proceed to Step 3 by clicking on "Submit Updated Classifications"
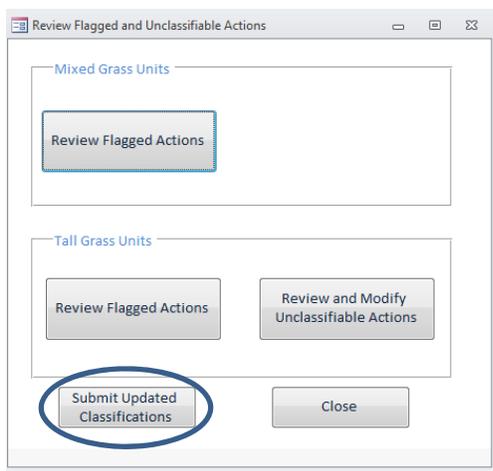
The same alerts as previously described for Step 2 will appear if any flagged records have not been reviewed, or if any actions remain unclassifiable.

If no problems exist, the coordinator will be notified that she/he can move on to Step 3:
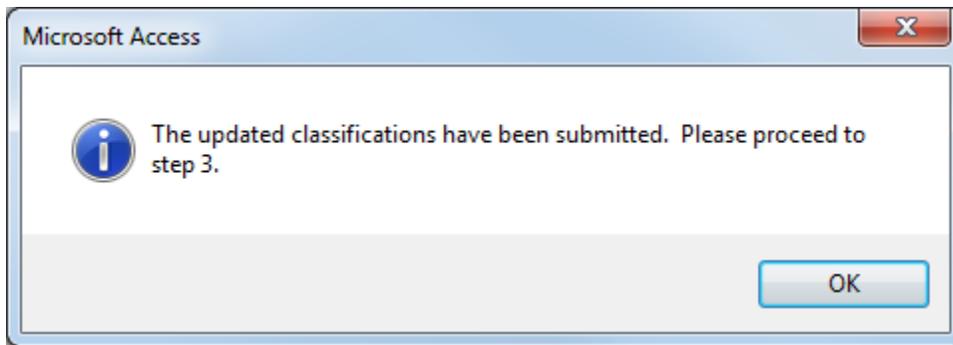
The same instructions apply to Step 3. After clicking on "Step 3", if the coordinator has already reviewed the unclassifiable units, she/he can proceed to Step 4 by clicking on "Submit Updated Classifications".

The same alerts as previously described for Step 3 will appear if any units remain unclassifiable. If no problems exist, the coordinator will be notified that she/he can move on to Step 4:
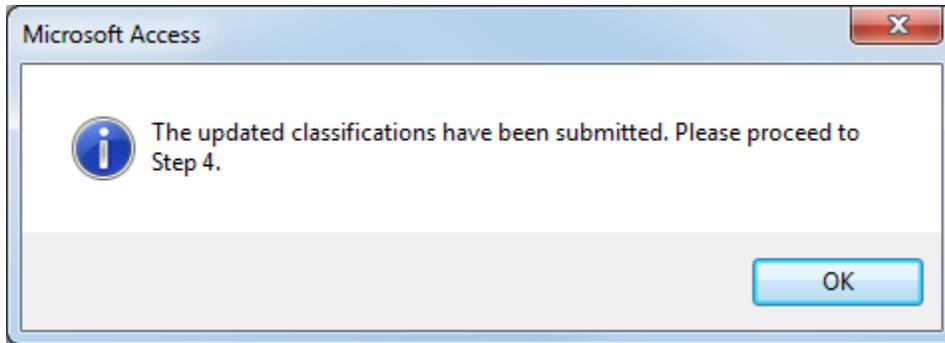
When the coordinator clicks on "Step 4", she/he will be asked if the updating step should be re-run:
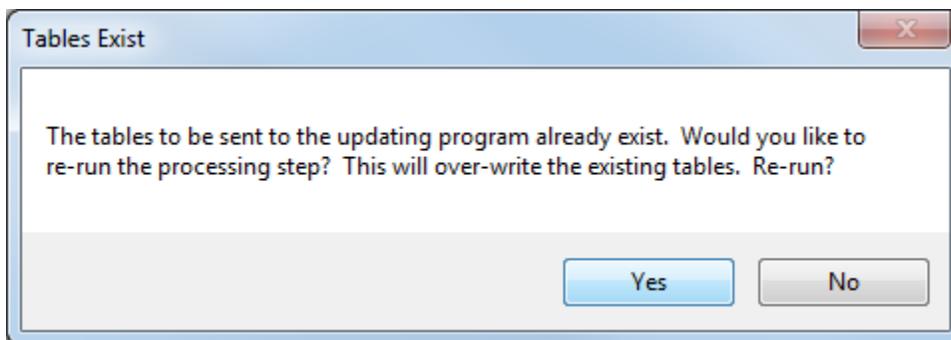
If the coordinator selects, "No", Step 5 becomes enabled.

When the coordinator clicks on "Step 5", a similar alert appears:
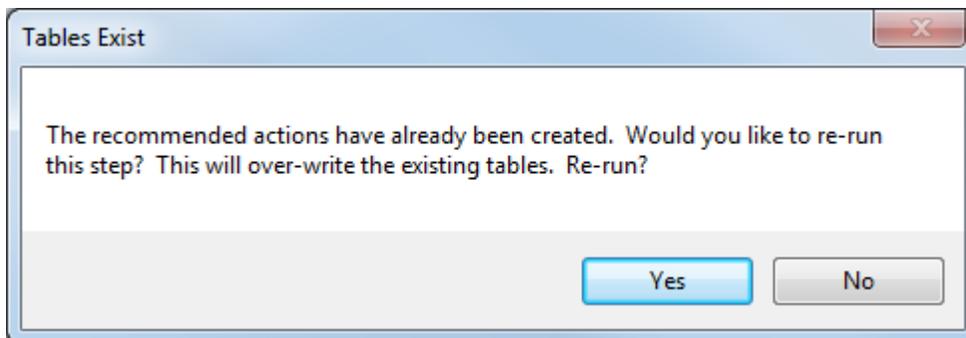
If the coordinator selects "No", Step 6 becomes enabled.

The user can then click on "Step 6" to create the Management Recommendation and Summary File reports. At any point, the coordinator can choose to re-run any previously completed step. Re-running a previously completed step will require all subsequent steps to be re-run.

Appendix A: Descriptions of select fields that appear in the forms reviewed when completing Step 2 and Step 3 of the annual Coordinator Processing steps. These descriptions also occur as pop-up windows within the forms themselves when the user clicks on the empty box for the field.

Mixed Grass

Management Number: Management action number *x* of *y* total management actions applied to the unit within the given management year. For example, if a unit received a burn/graze combination, there will be two total management actions. The first action applied during the management year will be number 1 of 2. The second action applied will be number 2 of 2.

Manage Type: The management action the cooperator entered into the database as the action that was applied to the unit.

Classification for Action: Classification of individual management actions into one of the four NPAM actions. Equal to the 'Manage Type' entered into the database (see Appendix B).

Classification for Unit: Classification of the management per unit taking into account all actions that were applied to the unit during the management year. For units with only one management action applied during the management year, this will be the same as 'Classification for Action'. For units with more than one management action applied during the management year, the classification for the unit will depend on the 'Classification for Action' of each action and the existing rules specific to mixed-grass units (see Appendix D).

Reclassified Action: Coordinator reclassification of the 'Classification for Action' based upon reviewing actions with flagged fields during Step 2a of the Coordinator Processing steps.

Reclassified Treatment for Unit: Reclassification of the management per unit taking into account 'Reclassified Action'(s) that took place during Step 2a of the Coordinator Processing steps.

Reclassified Final Treatment for Unit: Coordinator reclassification of units that are "Unclassifiable" according to the 'Reclassified Treatment for Unit'. These "Unclassifiable" units are reviewed as part of Step 3a of the Coordinator Processing steps.

Tall Grass

Management Number: Management action number *x* of *y* total management actions applied to the unit within the given management year. For example, if a unit received a burn and a graze, there will be two total management actions. The first action applied during the management year will be number 1 of 2. The second action applied will be number 2 of 2.

Manage Type: The management action the cooperator entered into the database as the action that was applied to the unit.

Phenology Start: Classification of the cooperator's entry for phenology of the unit at the start of the graze. Classification is *Before*, D*uring*, *After*, or *Unknown*; this refers to the timing of the start of the graze relative to the window.

Phenology End: Classification of the cooperator's entry for phenology of the unit at the end of the graze. Classification is *Before*, D*uring*, *After*, or *Unknown*; this refers to the timing of the end of the graze relative to the window.

Phenology: Classification of the cooperator's entry for phenology of the unit on the date of the burn. Classification is *Before*, D*uring*, *After*, or *Unknown*; this refers to the timing of the burn relative to the window.

Window Start: Classification of the start of the graze as occurring *Before*, *During*, or *After* the window; this is based on comparing the graze start date to the seasonally appropriate window start and end dates.

Window End: Classification of the end of the graze as occurring *Before*, *During*, or *After* the window; this is based on comparing the graze end date to the seasonally appropriate window start and end dates.

Window: Classification of the burn as occurring *Before*, *During*, or *After* the window; this is based on comparing the burn date to the seasonally appropriate window start and end dates.

Graze Window Length: Number of graze days that occur during the window.

Window Length: Length of the window in days.

END: Number of days that the window extends beyond the end of the graze; a.k.a. recovery time. Calculated as (window end date – graze end date). Only used in treatment classification if the graze ends during the window.

BEFORE: Number of days that the start of a graze precedes the opening of the window. Calculated as (window start date – graze start date). Only used in treatment classification if it is a fall graze that starts before the window begins.

AFTER: Number of days that the graze extends beyond the close of the window. Calculated as (graze end date – window end date).   Only used in treatment classification if the graze ends after the close of the window.

COVER: Proportion of the window that is covered by the graze. Calculated as (Graze Window Length / Window Length). Value will be between 0 and 1. Used in treatment classification if the graze spans some portion of the window (i.e., if the entire graze does not occur before the window opened or after the window closed).

Phenology Classified: Classification per applied management action using <u>only</u> the phenological data supplied per unit. If phenological data are missing or are insufficient and require the use of the window dates and associated fields (i.e., Window Start, Window End, Window, Graze Window Length, BEFORE, END, AFTER, or COVER), then the classification is "Not Possible".

Window Classified: Classification per applied management action using <u>only</u> window data (i.e., Window Start, Window End, Window, and the window derived calculations: Graze Window Length, BEFORE, END, AFTER, COVER).

Pheno=Window: True|False response. If 'Phenology Classified' matches 'Window Classified', then TRUE, else FALSE. If the comparison cannot be made because one or both is "Not Possible", then N/A.

Classification for Action: Classification of individual management actions into one of the four NPAM actions. Equal to 'Phenology Classified' unless the field is marked as "Not Possible", in which case it is equal to 'Window Classified' (see Appendix B).

Classification for Unit: Classification of the management per unit taking into account all actions that were applied to the unit during the management year. For units with only one management action applied during the management year, this will be the same as 'Classification for Action'. For units with more than one management action applied during the management year, the classification for the unit will depend on the 'Classification for Action' of each action and the existing rules specific to tallgrass units (see Appendix D).

Reclassified Action: Coordinator reclassification of the 'Classification for Action' based upon reviewing flagged actions during Step 2b of the Coordinator Processing steps and based upon reviewing unclassifiable or flagged and unclassifiable actions during Step 2c of the Coordinator Processing steps.

Reclassified Treatment for Unit: Reclassification of the management per unit taking into account 'Reclassified Action'(s) that took place during Step 2b and Step 2c of the Coordinator Processing steps.

Reclassified Final Treatment for Unit: Coordinator reclassification of units that are "Unclassifiable" according to the 'Reclassified Treatment for Unit'. These "Unclassifiable" units are reviewed as part of Step 3b of the Coordinator Processing steps.

Appendix B: Description of the rules the Access Database uses in Step 2 of the Coordinator Processing Steps to classify each management action that the cooperator entered into the database ('Manage Type') into one of the four recognized NPAM actions ('Classification for Action'). Appendix A includes definitions of several of the terms used in these rules. Appendix C provides visual depictions of the rules used to classify a graze implemented on a tallgrass unit to supplement these verbal rules.

Mixed Grass

- If 'Manage Type' is Rest then 'Classification for Action' is REST
- If 'Manage Type' is Graze then 'Classification for Action' is GRAZE
- If 'Manage Type' is Burn then 'Classification for Action' is BURN

Tall Grass

- If 'Manage Type' is Rest then 'Classification for Action' is REST

- If 'Manage Type' is Hay then 'Classification for Action' is DEFOLIATE

- If 'Manage Type' is Graze then:

  Phenology Classified: *Fall or Spring Graze (i.e., graze starts before or after January 1)*
    o 'Phenology Start' = Before and 'Phenology End' = Before then 'Phenology Classified' is DEFOLIATE
    o 'Phenology Start' = Unknown and 'Phenology End' = Before then 'Phenology Classified' is DEFOLIATE
    o 'Phenology Start' = After and 'Phenology End' = After then 'Phenology Classified' is DEFOLIATE
    o 'Phenology Start' = After and 'Phenology End' = Unknown then 'Phenology Classified' is DEFOLIATE
    o 'Phenology Start' and 'Phenology End' are any other combination than outlined above, then 'Phenology Classified' is NOT POSSIBLE

  Window Classified: *Fall or Spring Graze (i.e., graze starts before or after January 1)*
    o 'Window Start' = Before and 'Window End' = Before then 'Window Classified' is DEFOLIATE
    o 'Window Start' = Unknown and 'Window End' = Before then 'Window Classified' is DEFOLIATE
    o 'Window Start' = After and 'Window End' = After then 'Window Classified' is DEFOLIATE
    o 'Window Start' = After and 'Window End' = Unknown then 'Window Classified' is DEFOLIATE

Window Classified: *Fall Graze (i.e., the graze starts before January 1)*
o ‘Window Start’ = Before **and** ‘Window End’ = During **and**
  ▪ ‘Graze Window Length’ >= 14 days **or** ‘COVER’ = 1.0 **and** ‘BEFORE’ <= 14 days **and** ‘END’ <= 14 days then ‘Window Classified’ is GRAZE W/IN WINDOW
  ▪ else ‘Window Classified’ is DEFOLIATE
o ‘Window Start’ = During **and** ‘Window End’ = During **and**
  ▪ ‘Graze Window Length’ >= 14 days **or** ‘COVER’ = 1.0 **and** ‘END’ <= 14 days then ‘Window Classified’ is GRAZE W/IN WINDOW
  ▪ else ‘Window Classified’ is DEFOLIATE
o ‘Window Start’ = During **and** ‘Window End’ = After **and**
  ▪ ‘Graze Window Length’ >= 14 days **or** ‘COVER’ = 1.0 **and** ‘AFTER’ <= 28 days then ‘Window Classified’ is GRAZE W/IN WINDOW
  ▪ else ‘Window Classified’ is DEFOLIATE
o ‘Window Start’ = Before **and** ‘Window End’ = After **and**
  ▪ ‘BEFORE’ <= 14 days **and** ‘AFTER’ <= 28 days then ‘Window Classified’ is GRAZE W/IN WINDOW
  ▪ else ‘Window Classified’ is DEFOLIATE

Window Classified: *Spring Graze (i.e., the graze starts after January 1)*
o ‘Window Start’ = Before **and** ‘Window End’ = During **and**
  ▪ ‘Graze Window Length’ >= 14 days **or** ‘COVER’ = 1.0 **and** ‘END’ <= 7 days then ‘Window Classified’ is GRAZE W/IN WINDOW
  ▪ else ‘Window Classified’ is DEFOLIATE
o ‘Window Start’ = During **and** ‘Window End’ = During **and**
  ▪ ‘Graze Window Length’ >= 14 days **or** ‘COVER’ = 1.0 **and** ‘END’ <= 7 days then ‘Window Classified’ is GRAZE W/IN WINDOW
  ▪ else ‘Window Classified’ is DEFOLIATE
o ‘Window Start’ = During **and** ‘Window End’ = After **and**
  ▪ ‘Graze Window Length’ >= 14 days **or** ‘COVER’ = 1.0 **and** ‘AFTER’ <= 14 days then ‘Window Classified’ is GRAZE W/IN WINDOW
  ▪ else ‘Window Classified’ is DEFOLIATE
o ‘Window Start’ = Before **and** ‘Window End’ = After **and**
  ▪ ‘AFTER’ <= 14 days then ‘Window Classified’ is GRAZE W/IN WINDOW
  ▪ else ‘Window Classified’ is DEFOLIATE

Classification for Action
o If ‘Phenology Classified’ is not N/A or NOT POSSIBLE, then ‘Classification for Action’ = ‘Phenology Classified’
o If ‘Phenology Classified’ = N/A or NOT POSSIBLE, then ‘Classification for Action’ = ‘Window Classified’
o If ‘Phenology Classified’ = N/A or NOT POSSIBLE and ‘Window Classified’ = N/A then ‘Classification for Action’ = UNCLASSIFIABLE

- If 'Manage Type' is Burn then:

  Phenology Classified
  - o 'Phenology' = Before then 'Phenology Classified' is DEFOLIATE
  - o 'Phenology' = During then 'Phenology Classified' is BURN W/IN WINDOW
  - o 'Phenology' = After then 'Phenology Classified' is DEFOLIATE
  - o 'Phenology' = Unknown then 'Phenology Classified' is N/A

  Window Classified
  - o 'Window' = Before then 'Window Classified' is DEFOLIATE
  - o 'Window' = During then 'Window Classified' is BURN W/IN WINDOW
  - o 'Window' = After then 'Window Classified' is DEFOLIATE
  - o 'Window' = Unknown then 'Window Classified' is N/A

  Classification for Action
  - If 'Phenology Classified' is not N/A, then 'Classification for Action' = 'Phenology Classified'
  - If 'Phenology Classified' = N/A, then 'Classification for Action' = 'Window Classified'
  - If 'Phenology Classified' = N/A and 'Window Classified' = N/A then 'Classification for Action' = UNCLASSIFIABLE

Appendix C: Visual depiction of the tallgrass rules for classification of grazes relative to the window.

The gray box represents the window.
The black line represents the graze.
g = the length of the graze in days
gwl = the number of graze days that fall within the window
wl = the length of the window in days
cover = gwl/wl; the proportion of the window that is covered by the graze
b = Before. The number of days that the start of a graze precedes the opening of the window.   Calculated as (window start date – graze start date).
e = End. Number of days that the window extends beyond the end of the graze; a.k.a. recovery time. Calculated as (window end date – graze end date).
a = After. The number of days that the graze extends beyond the close of the window. Calculated as (graze end date – window end date).
Phenology start = Classification of the cooperator's entry for phenology of the unit at the start of the graze. Classification is 'Before', 'During', or 'After', which refers to the timing of the start of the graze relative to the window.
Phenology end = Classification of the cooperator's entry for phenology of the unit at the end of the graze. Classification is 'Before', 'During', or 'After', which refers to the timing of the end of the graze relative to the window.
Window start = Classification of the start of the graze as occurring 'Before', 'During', or 'After' the window; this is based on comparing the graze start date to the seasonally appropriate window start and end dates.
Window end = Classification of the end of the graze as occurring 'Before', 'During', or 'After' the window; this is based on comparing the graze end date to the seasonally appropriate window start and end dates.

Classification Rules: Fall
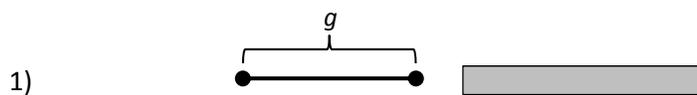
1)

  Entire graze occurs before the window then classify as Defoliate.
  Phenology start | Phenology end = Before | Before

---

2)

  Entire graze occurs after the window then classify as Defoliate.
  Phenology start | Phenology end = After | After

---

3)
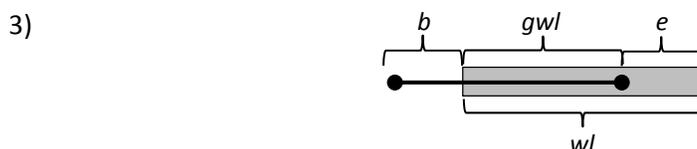
  Graze starts before and ends during the window.

Window start | *Window end* = Before | During
> If *gwl* ≥ 14 days **or** *cover* = 1.0 **and** b ≤ 14 days **and** *e* ≤ 14 days then classify as Graze within window, else Defoliate.
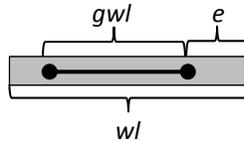
---

4)

Entire graze occurs within the window.
Window start | *Window end* = During | During
> If *gwl* ≥ 14 days **or** *cover* = 1.0 **and** *e* ≤ 14 days then classify as Graze within window, else Defoliate.
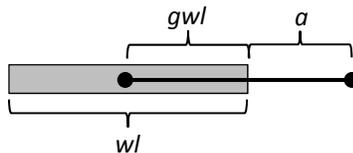
---

5)

Graze starts during and ends after the window.
Window start | *Window end* = During | After
> If *gwl* ≥ 14 days **or** *cover* = 1.0 **and** *a* ≤ 28 days then classify as Graze within window, else Defoliate.
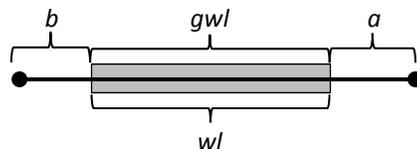
---

6)

Graze spans the window.
Window start | *Window end* = Before | After
> If *gwl* ≥ 14 days **or** *cover* = 1.0 **and** *b* ≤ 14 days **and** *a* ≤ 28 days then classify as Graze within window, else Defoliate.

The grazes depicted in scenarios 1 and 2 can be classified solely based on the phenological responses provided by the cooperator for the specific unit (*Phenology start* and *Phenology end*). Scenarios 3 – 6, where the graze overlaps the window in some way, require the use of the window dates to determine *Window start*, *Window end*, and the calculated variables (i.e., *gwl, wl*, cover, *b*, *e*, and *a*) necessary to classify the graze as a 'Graze within window' or 'Defoliate'.

Classification Rules: Spring

1)

Entire graze occurs before the window then classify as Defoliate.
Phenology start | Phenology end = Before | Before

---

2)

Entire graze occurs after the window then classify as Defoliate.
Phenology start | Phenology end = After | After

---

3)

Graze starts before and ends during the window.
Window start | Window end = Before | During
　　　If *gwl* $\geq$ 14 days **or** *cover* = 1.0 **and** *e* $\leq$ 7 days then classify as Graze within window, else Defoliate.

---

4)

Entire graze occurs within the window.
Window start | Window end = During | During
　　　If *gwl* $\geq$ 14 days **or** *cover* = 1.0 **and** *e* $\leq$ 7 days then classify as Graze within window, else Defoliate.

---

5)

Graze starts during and ends after the window.
Window start | Window end = During | After

If *gwl* $\geq$ 14 days **or** *cover* = 1.0 **and** *a* $\leq$ 14 days then classify as Graze within window, else Defoliate.

6)

Graze spans the window.
Window start | *Window end* = Before | After
      If *gwl* $\geq$ 14 days **or** *cover* = 1.0 **and** *a* $\leq$ 14 days then classify as Graze within window, else Defoliate.

The grazes depicted in scenarios 1 and 2 can be classified solely based on the phenological responses provided by the cooperator for the specific unit (*Phenology start* and *Phenology end*). Scenarios 3 – 6, where the graze overlaps the window in some way, require the use of the window dates to determine *Window start*, *Window end*, and the calculated variables (i.e., *gwl, wl*, cover, *e*, and *a*) necessary to classify the graze as a 'Graze within window' or 'Defoliate'.

Appendix D: Description of the rules the Access Database uses in Step 3 of the Coordinator Processing Steps to classify the management per unit ('Classification for Unit') into one of the four recognized NPAM actions given the classified management actions ('Classification for Action') that occurred on the unit during the given management year. If the unit received only one management action within the management year, the classification for the unit will be the same as the classification for the single action. If, however, the unit received more than one management action during the management year, the rules listed in this appendix are used to classify the overall action for the unit.   "Action" refers to 'Classification for Action'. "Classify the unit" refers to 'Classification for Unit'.

Mixed-Grass
- If Rest is the only action indicated, then classify the unit as REST[1]
- If Graze is the only action indicated, then classify the unit as GRAZE
- If Burn is the only action indicated, then classify the unit as BURN
- If Burn and Graze are the only action indicated, then classify the unit as BURN/GRAZE
- If some other combination of actions occur, then classify the unit as UNCLASSIFIABLE[2]

Tallgrass
- If Rest is the only action indicated, then classify the unit as REST[1]
- If Defoliate is the only action indicated then classify the unit as DEFOLIATE
- If Graze within window is the only action indicated then classify the unit as GRAZE WITHIN WINDOW
- If Burn within window is the only action indicated then classify the unit as BURN WITHIN WINDOW
- If Defoliate and Graze within window are the only actions indicated then classify the unit as UNCLASSIFIABLE
- If Defoliate and Burn within window are the only actions indicated then classify the unit as UNCLASSIFIABLE
- If Burn within window and Graze within window are the only actions indicated then classify the unit as UNCLASSIFIABLE
- If some other combination of actions occur, then classify the unit as UNCLASSIFIABLE[2]

[1] While the data entry interface does not allow Rest to overlap with another NPAM action, this rule exists in case the Coordinator reclassifies a management action from an active treatment to a Rest in Step 2 of the Coordinator Processing steps. If the Coordinator does this to a management action that is one of two or more actions on that unit during the management year, then a Rest will overlap with another action.

[2] This is a catch all. It will catch Coordinator reclassification of actions to "Rest" that overlap with other treatments on the unit during the same management year. It will also catch Coordinator reclassification of actions to "Non-NPAM Action". These reclassifications of actions, if they occurred, would have taken place during Step 2 of the Coordinator Processing steps.